

Amoco Cadiz

the largest ever oil spill

Scientists and economists at work

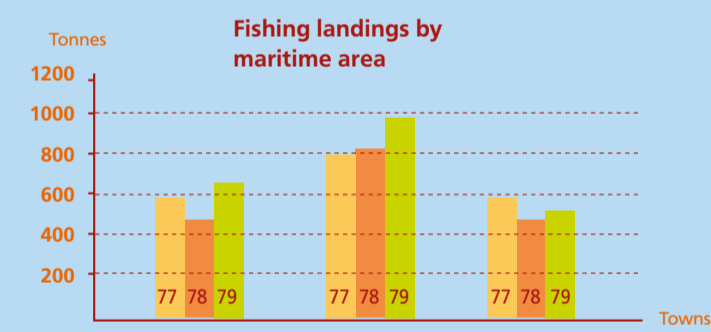
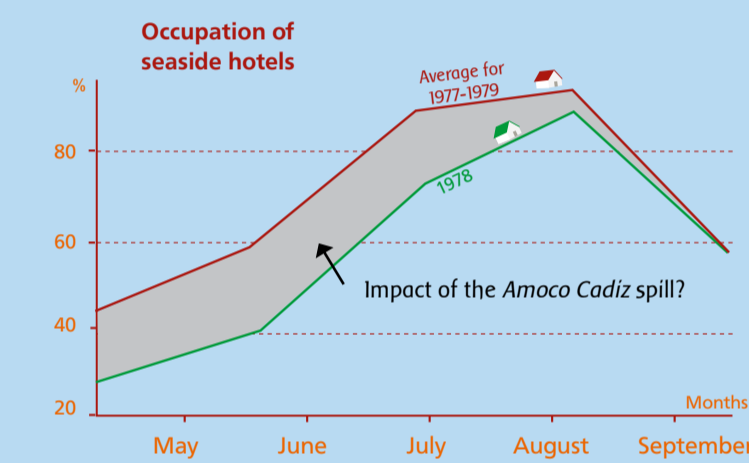
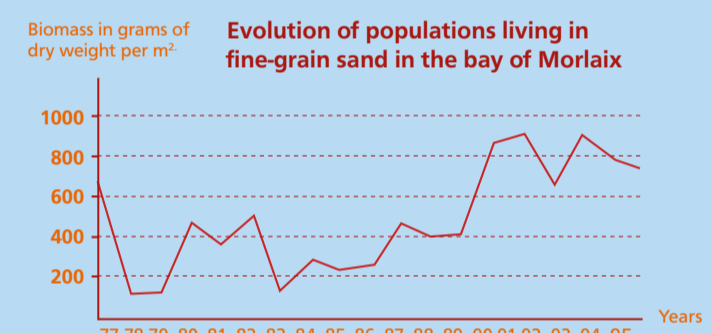
Impact studies on the pollution involved 25 teams of biologists, ecologists and economists.

These studies brought to light a multitude of problems:

- how can the fate of fish, crustaceans and shellfish born just after the disaster be measured?
- how can the expenses for road works caused by response operations be differentiated from normal maintenance work?
- how can natural breakdown of oil in mudflats where it is impossible to intervene be accelerated?
- how can losses to shellfish collection be quantified, when no statistics are available for this activity before the crisis period?

Scientists estimated that the oil spill killed more than 260,000 tonnes of marine animals. In the worst affected areas, they highlighted a proliferation from 1978-1979 of opportunist species, resistant to the presence of oil, which replaced the usual fauna. These opportunist species gradually gave way to tolerant species, which in 1982-1983 accounted for over three quarters of the populations. Finally, species which were sensitive or very sensitive to hydrocarbons began to resettle and attained their normal level by 1984-1985. In total, it took 6 to 7 years for the former balance to be regained.

The work of economists was no easy task. Damages to fishing were difficult to quantify due to the permanent evolution of resources and techniques. Tourist industry statistics showed great variation from year to year, thus masking the effect of the oil spill.



A 14 year long lawsuit

Amoco Transport Company, the shipowner of the *Amoco Cadiz*, had only a minimal insurance policy. The French State, local government and the individual victims of the pollution were aware that legal proceedings in France would not ensure that the company paid. They therefore decided to take legal action against the parent company, Amoco International Oil Company, in New York, then in Chicago. The French State, two departments, 90 communes and thousands of individuals belonging to various associations together claimed a total of over 152 million Euros (1978 value), with the support of a few dozen scientists and a handful of lawyers. On the opposing team, the Amoco group lined up hundreds of defence lawyers and experts, including a Nobel Prize winner in economics.

and shellfish breeders during the period when they were out of work. However, less than 30% of the expenses claimed for road works and replacement of public works equipment was awarded and less than 20% of medium and long term economic damages claimed for fishing, aquaculture and tourism. In total, the equivalent of 52 million Euros (1978 value), rising to 106 million Euros including interest for late payment, was allocated. The claimants appealed. The struggle of experts and lawyers resumed. The aspiration of claiming compensation for ecological damages did not stand up to the strategy of this legal battle.

In 1992, the decision was finally modified. The court reassessed both the damages and interest rates, increasing the total compensation to nearly 192 million Euros at 1992 value.

In 1988, the court awarded reimbursement of 50 to 60% of clean-up expenses and aid allocated to fishermen



Impact on the shoreline, Portsall, 18/03/1978 © J. Le Fevre

Action taken

After the desperate response of the first few days, the actions to be taken were gradually organised. At sea, the use of precipitating agents and dispersants as well as the rotation of the winds prevented the slicks from drifting to the Channel Islands.

Beach clean-up was carried out in two stages: first, the pumping of the still liquid oil, and secondly the removal of oiled waste. In total, over 100,000 tonnes of "chocolate mousse" and polluted waste were recovered, much of which was neutralised using quicklime.

Sea fishing was banned from the day of the spill up until the end of April. Oysters in the creeks of Finistère and the bay of Morlaix became unfit for human consumption and had to be destroyed. The administration of maritime affairs set up financial aid for the affected fishermen and shellfish breeders. The tourist industry feared that their season would be entirely lost.



Containment of the pollution by booms © J. Denis/Hemera

Pumping the oil © Cedre

Never again!

As a result of this disaster, the French government set up an important series of measures to reduce the risks of accidents and to ensure better response resources. The conclusion was unanimous: such an oil spill must never reoccur.

A new marine pollution response plan (Polmar plan) was established. A traffic separation scheme, since altered, was set up off the coast of Ushant island, ensuring that vessels transporting hazardous materials stay 50 km from the coast. A powerful high sea tug, the *Abeille Flandre*, was placed on permanent standby to assist vessels using the shipping lanes. Finally, a specialised technical centre was created to ensure continuous technical surveillance: this centre was named *Cedre*. It is available around the clock in case of a pollution incident.

Preliminary overview

In autumn 1978, nothing much was left to be seen of the pollution apart from the few remaining waste storage sites which were in the process of being evacuated. The winter storms completed the shoreline clean-up operations initiated by human intervention. The authorities, scientists, ecologists and professionals of the sea and the tourist industry began to total up the impact of the disaster.

In November 1979, a preliminary account of the damages was presented at a conference:

- between 19,000 and 37,000 dead birds
- 6,400 tonnes of oysters destroyed
- seaweed and shellfish collection seriously affected
- thousands of fishermen out of work
- a badly affected tourist season.

However, what concerned the experts more than these short term damages was the future. Such a major oil spill had never before been experienced. How would nature regain its natural balance?



Impact on the shoreline © J. Le Fevre

Initial response efforts

Buckets, spades, floating pumps, slurry spreaders, dump trucks and road tankers were used to recover and transport the pollutant to temporary storage facilities. In a few days, 14,000 volunteers and members of the armed forces got to work to clean up the most heavily oiled rocks, beaches and creeks. In a few weeks, they managed to recover 15,000 tonnes of oil and 45,000 tonnes of oiled seaweed, sand and large solid waste.

Rescue centres were set up for oiled birds in Finistère and Côtes-d'Armor, although barely one bird in 20 was able to be saved. A few dead grey seals were recovered on the beaches of the Côtes-d'Armor. All along the oiled coastline, animal and plant populations were dying in numbers.



Recovery by an EGMOPOL barge and clean-up by low pressure washing © Cedre

Mussels affected by the pollution © J. Le Fevre

The incident

On the morning of the 16 March 1978, the Liberian oil tanker the *Amoco Cadiz* suffered a technical failure of her steering system off the coast of Finistère in Brittany, France. The tanker was transporting 227,000 tonnes of crude oil from the Persian Gulf to Rotterdam (Netherlands) when she began to drift towards the coastline in a heavy storm. Negotiations with a German tug which came to its rescue proved difficult.

- 9:45 → The *Amoco Cadiz* suffered a failure to her steering system.
- 13:15 → The tug the *Pacific* arrived. First towing attempt.
- 15:00 → The two vessels drifted eastwards. The wind increased.
- 16:18 → The towline broke. There was an easterly force 8 wind, with gusts of force 9 to 10.
- 22:00 → After 5 attempts, the second towline was attached but it was too late. The oil tanker stranded on the rocks at Portsall.
- 23:55 → Beginning of rescue operations to save human lives.

Over a two week period, the entire cargo was spilled at sea. The oil was swept along by wind and currents to pollute 360 km of the Breton coastline. The local inhabitants were thrown into a desperate struggle against a much foretold disaster. On their television screens, the French nation discovered in astonishment the apocalyptic images of a major oil spill.

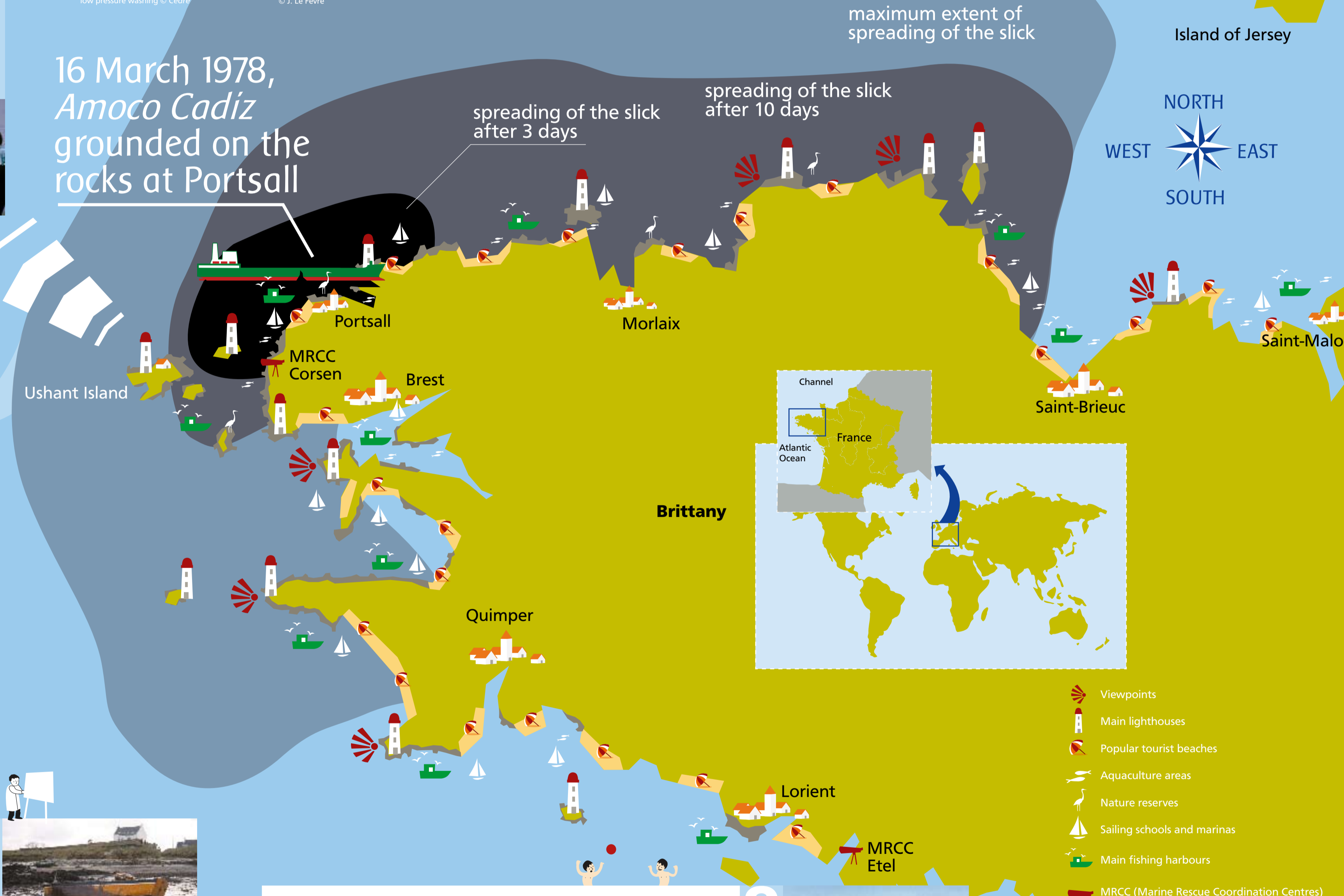
Cause of accident	Pollutant	Quantity transported	Quantity spilled	Waste collected	Length of coastline polluted
Mechanical failure	Light crude oil	227,000 t	227,000 t	100,000 t	360 km



Wreck of the *Amoco Cadiz* by Portsall © J. Le Fevre

Drift of the vessel

16 March 1978, Amoco Cadiz grounded on the rocks at Portsall



By thirty years on

Although some ecological follow-up studies still show evidence of imbalances, this only concerns a few benthic populations in the depths of the most badly affected bays. However for the tourist and fishing industries and all other economic activities, the *Amoco Cadiz* oil spill is no more than a distant memory. We feared long term effects on certain species, the development of cancer in surviving animals, a reduction in their reproductive capacities, a weakening of generations born after the pollution. Scientific follow-up confirmed none of these phenomena. A multitude of complex effects, which proved difficult to interpret, were observed. However, it would be unwise to attribute these effects entirely to the *Amoco Cadiz* spill. Other factors interfered, year after year, with the economic and ecological balance of the shoreline. Subsequent oil spills have occurred, the tourist industry has evolved, fishing techniques and priorities have changed, urban and agricultural pollutants have been released into the water catchment area and on the coast.

The wreck has become a refuge for fish and crustaceans. Tourists take photos by the ship's anchor, which stands as a symbolic reminder at Portsall harbour.

The *Amoco Cadiz* oil spill is now a part of history.



The anchor of the *Amoco Cadiz*, Portsall © Cedre

- Viewpoints
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- Popular tourist beaches
- Aquaculture areas
- Nature reserves
- Sailing schools and marinas
- Main fishing harbours
- MRCC (Marine Rescue Coordination Centres)

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