The Prestige Disaster

One Year On

GREENPEACE

The Prestige Disaster. One Year On

A report written by María Jose Caballero
Oceans Campaign. Greenpeace Spain
November 2003

Never again another *Prestige*

Far away from the press headlines, an almost silent battle is being fought between those who profit from the business of transporting hazardous substances by sea and those of us who defend drastic measures to prevent new oil slicks. Ever since the *Prestige* began to pour lethal fuel into the Atlantic one year ago, little has changed in legal terms. Although the European Union has forbidden the entry of single-hulled ships carrying heavy fuel into European ports, this type of fuel represents only around 5% of all the oil products that enter Europe. Nevertheless, the International Maritime Organisation (IMO) has already hit the roof over this timid initiative.

A change in the regime of responsibility has not even been contemplated by the EU or the IMO. With things as they are, unlimited responsibility in accidents such as that of the *Prestige* continues to sound like a Utopia. Where is Crown Resources today? Once again, people and the environment have paid and will continue to pay a high price whilst those that profit from the traffic of crude oil hide behind unapproachable legal structures.

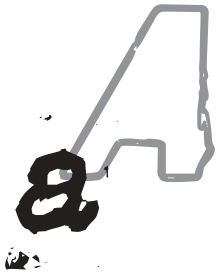
One year after the catastrophe, we now know that the European coastline had never before suffered so much as the result of an oil slick: over 2,000 kilometres of coast affected, hundreds of thousands of birds covered in oil and, one year later, the fuel continues to reach our shores. The figures are staggering and not even the tireless propaganda efforts of certain leaders have managed to convince us that "nothing happened here".

With this report, Greenpeace looks back, once again, and reviews the year that has passed since the *Prestige*. However, above all, we want to look forward and propose specific measures that will prevent another *Prestige* from happening. Our proposals are ambitious but indispensable and range from the protection of coastal areas in order to ensure their recovery to changes in the preventive international maritime legislation. It would be shameful if, after so much damage, nothing were to change.

The next oil slick is waiting to happen. The question we ask ourselves is not whether or not it will happen, but when and where. We want to stop asking this question. We want things to change. That is the reason behind this report. That is the reason behind the proposals it contains. We hope that they do not fall on deaf ears.

Juan López de Uralde
Executive Director of Greenpeace Spain

Executive Summary



t 3.15 p.m. on 13th November 2002, the 26-year-old, single-hulled oil tanker *Prestige*, flying the Bahamian flag and loaded with 77,000 tonnes of residual heavy fuel oil, sent out an SOS at a distance of 28 miles (50 kilometres) from Finisterre, Galicia, Spain. At five o'clock that afternoon, the first litres of crude oil began to pollute the Atlantic Ocean.

One year later, the remains of the slick, the sadly famous "chapapote", "pichi" or "galipote", depending on the stretch of coast where it comes to shore, continues to appear like a never-ending tide on the Atlantic coast[1]

Studies such as "El Impacto del *Prestige*"[2], carried out by scientists from Galician universities, reveal a particular concern about the current situation. The authors, who also studied the repercussions of the sinking of the Mar Egeo ship off the coast of A Coruña in 1992, estimate that the damage caused by the *Prestige* is even greater. The enormous loss of bird life, between 250,000 and 300,000 specimens according to estimates by the Spanish Ornithology Society (SEO/BirdLife), indicates that we are talking of the greatest catastrophe of this type ever suffered in Europe and the second most serious in the world after the wildlife deaths caused by the Exxon Valdez in Alaska in 1989. The research done by these experts indicates that, from an economic point of view, the *Prestige* disaster actually exceeds that of the Exxon Valdez since the cost of the cleaning and recovery work could total 2,500 million euros, compared to the 1,800 million spent in Alaska.

According to the predictions of expert scientists in this area, the socio-economic and environmental repercussions of the oil slick will continue to be felt for at least a decade along the 2,000 kilometres of coast that have been affected. The entire Cantabrian and Galician Atlantic coasts have seen their shores seriously damaged by the arrival of countless waves of crude oil. The spill has blackened beaches and cliffs, eliminated some of the marine life, either directly (due to mortalities) or indirectly (many free-moving organisms fled when faced with the presence of the hydrocarbon). It has also jeopardised the quality of the waters, which will take many years to recover the characteristics necessary for marine life to develop as it was before the environmental disaster.

Despite this serious situation, the Spanish government has still not presented a comprehensive recovery plan which would serve to speed up the environmental, economic and social recovery of the affected coastline. Furthermore, there has been no change in the international global regulatory regime which could prevent similar accidents in the future.

The *Prestige* disaster must serve as a salutary lesson and lead to a change in direction. This is how it must be understood by those that manage economic and environmental resources. The Cantabrian and Galician coasts have been a source of wealth for hundreds of years, both in terms of resources and employment. Now they are more vulnerable than ever and their very structure and function are under threat.

We must use all the expertise and resources necessary in order to prevent such a huge-scale disaster from ever happening again. The Spanish government must understand the role that the marine environment plays in the natural biological balance and must give priority to the environmental, economic and social recovery of the affected area as a whole.

A fair measure of the Spanish government's scarce interest is the amount of money invested in evaluating the catastrophe caused by the *Prestige*. The Ministry of Science and Technology has implemented research programmes which total, according to several sources close to the government, less than 10 million euros. The amount spent by the North

[1]The North Atlantic coast encompasses the Cantabrian and Galician coasts.
[2]El Impacto del Prestige. Análisis y Evaluación de los daños causados por el accidente del Prestige y dispositivos para la regeneración y recuperación económica de Galicia. Instituto de Estudios Económicos de Galicia. Pedro Barrié de la Maza.

American government in evaluating and monitoring the oil slick caused by the Exxon Valdez came close to 400 million dollars. Forty times the budget for the *Prestige*.

This would require the development of an environmental monitoring system for the affected ecosystems. The measures put forward so far by the government are partial and fragmentary and in many cases they completely overlook the natural areas that have been affected. This is true of the so-called "Plan Galicia", a combination of costly infrastructures (ports, roads and railways) which are totally unrelated to the recovery programmes needed by the Galician and Cantabrian coasts.

In order to prevent new oil slicks in coastal areas, it is essential to force the shipping industry to operate with the greatest safety guarantees, to control maritime traffic, strengthen safety measures and control pollution from the land.

Greenpeace believes that urgent action is necessary in order to prevent catastrophes like that of the *Prestige* from happening again on our coasts. To achieve this, it is essential for solutions to be implemented which will prevent new disasters. Greenpeace also considers the complete recovery of the affected ecosystems to be urgently necessary.

Together with these measures, the recovery of the areas affected by the pollution must not be further delayed . The Spanish government, in collaboration with the scientific and fishing community, must prepare a comprehensive plan by which to restore the affected areas. Scientific and technical knowledge must be employed to lessen the effects of the spill and accelerate the recovery of the damaged coastal ecosystems, something which will, without doubt, benefit those economies that are linked to the marine environment.

In the scientific world, there exists a general consensus regarding the beneficial effect of protecting areas of particular biological value. This protection will accelerate the recovery of the damaged natural environment, as well as all its inhabitants.

Currently, along the 2,000 kilometres of coast affected by the *Prestige*, there are only two protected marine reserves: the Islas Atlánticas, which have the protected status of a National Park, and a small area on the Basque coast, the protected biotope of Gaztelugatxe. The lack of protected marine reserves must be remedied quickly, as was demanded by the European Union in a report recently presented to the European Parliament.

The Spanish government, and some other EU States did propose that the International Maritime Organisation (IMO) establish a Particularly Sensitive Sea Area (PSSA) that would help protect the area from dangerous ships in the Atlantic. A dozen countries belonging to the IMO have expressed their opposition to this proposal, thereby demonstrating the scarce importance that these governments give to environmental issues.

The final decision regarding this proposal for protection will be taken in October 2004. Even if the measure is finally approved, it is clearly not

enough to ensure the recovery of the area affected by the oil slick since other threats will remain, as is acknowledged by many countries, even those that oppose the declaration of a protected marine reserve. The Spanish government has a duty and obligation to implement all necessary measures within its sphere of activity, where it cannot be denied the right to create protected areas which will help to prevent new catastrophes and will benefit the environmental and economic recovery of the affected areas.

The International Maritime Organisation (IMO) is the UN body charged with the task of protecting the oceans and human life from the activities of the shipping industry. Following the sinking of the *Prestige*, and earlier the Erika, there was a recognition among the public and some authorities that the current regulations were inadequate to ensure protection of the environment, lives and livelihoods. It is clear that a range of measures need to be implemented urgently which would increase the quality of shipping. These include:

- The regime of responsibility that arises from an accident. The current compensation system is based on the limited financial responsibility of the owner of the vessel, according to the tonnage of the ship. Under the current system, this responsibility is restricted exclusively to the shipowner whilst the managers, charterers, operators and owners of the load (which, in the case of oil slicks, are usually large multinational oil companies) are entirely exempt of all responsibility. Following the case of the Exxon Valdez (property of Exxon-Mobil) and the Erika (property of the company Total Fina), in which the affected countries demanded that the oil companies accepted their responsibility for the oil slick caused, the reaction of these companies did not lead to an increase in safety but instead quite the opposite. The large oil companies have gradually reduced their safety measures in order to evade their responsibilities. Although governments and industry should fully comply with the polluter pays principle, the reality is that the financial liability paid by commercial interests is absurdly low. The real cost is The international community fulfils the requirement that "he who pollutes, pays" but forgets to mention that the amount paid is absurd and that the rest of the cost is borne by the citizens and the environment on which they and their livelihoods depend. In this context, it becomes clear that the interest in investing to improve ship safety is minimal.
- The rapid phase out of single-hulled tankers worldwide.
- The establishment of Particularly Sensitive Sea Areas (PSSAs) for the most vulnerable coastlines.
- A more robust and transparent inspection and maintenance regime including the publication of classification society survey results.
- Closure of loopholes such as the use of Flags of Convenience whereby shipowners can avoid their responsibilities by flagging a vessel with a county in which the standards are lowest.

Greenpeace demands the creation of a network of protected marine reserves along the entire length of the coast affected by the *Prestige* disaster, as one of the solutions to enable the recovery of the ecosystems affected by the oil spill.

These are some of the measures which need to be implemented globally by the IMO. However, in the absence of any moves by the IMO, the EU has taken some steps, albeit limited, in calling for an early phase out of single-hulled tankers carrying heavy fuel oil. The EU has also proposed certain Marine Protected Areas. While neither of these measures go far enough, they are at least more than has been taken by the IMO.

Repercussions of the *Prestige* oil slick

Oil slicks are occasional but intense cases of pollution. The short-term effects, obvious and spectacular, are followed by other medium- and long-term effects which are less visible but generally more important from an ecological and economic point of view[3].

One year after the accident involving the *Prestige*, the impact caused by the spillage is clear. The serious pollution of almost 2,000 kilometres of coast is not a fleeting occurrence that can be forgotten.

Images of the sea, beaches and cliffs covered in black are not merely pictures engraved in our minds. Their consequences cover a series of economic, health-related, social and environmental issues which must be taken into account.

In the report "*Prestige*: Seis meses después" (*Prestige*: Six months afterwards) Greenpeace protested at the lack of information about the impact of the spillage on the affected ecosystems. Six months on, we cannot say that the situation has improved noticeably. Very little is known about the studies that are being carried out by the administration to assess the repercussions of the oil slick. Nor has it made public any recovery plans or measures dealing with the issues and sectors affected, such as food safety, tourism or social repercussions.

The sectors that are directly related with the marine environment, fishing, shellfishing and tourism, are already suffering the effects of the *Prestige* oil slick. However, they are not alone, since the economy and well-being of all the affected communities have suffered indirect effects.

An evaluation is necessary of the health of the volunteers who collected the remains of the oil slick, as well as that of the coastal population which has suffered the impact of the fuel. In addition to public health, food safety also requires great attention. Analyses have shown that the fuel oil spilled by the *Prestige* is highly toxic. Its composition includes substances that are classed as being highly dangerous for human health, such as polycyclic aromatic hydrocarbons (PAHs), for which neither Spain nor Europe has yet decreed limits regarding their presence in food. These limits have only been established by the Galician Autonomous Government, however they have not been converted into regulations and are not, therefore, official[4].

©GREENPEACE/ MABEL URIBES

"Without doubt, those who have exaggerated the consequences of the *Prestige* oil tanker spillage have acted in bad faith. The sea is very large and can defend itself".

Manuel Fraga. President of the Galician Autonomous Government. La Vanguardia. 12/09/03

[3]Freire J, L Fernández, E González-Gurriarán & R Muiño (2003). Impacto ambiental da marea negra do Prestige: efectos sobre os ecosistemas mariños e os recursos pesqueiros. Papel da comunidade científica na resposta á crise. En, ¿Qué foi do Prestige?, Balance ecolóxico e social sobre as causas e efectos do afundimento do Prestige. J. Cabrera & A García-Allut (eds.). Ed. Sotelo Blanco (en prensa).

[4]Freire J, L Fernández, E González-Gurriarán & R Muiño (2003). Impacto ambiental da marea negra do Prestige: efectos sobre os ecosistemas mariños e os recursos pesqueiros. Papel da comunidade científica na resposta á crise. En, ¿Qué foi do Prestige?, Balance ecolóxico e social sobre as causas e efectos do afundimento do Prestige. J. Cabrera & A García-Allut (eds.). Ed. Sotelo Blanco (en prensa).

At the end of February, Greenpeace demanded that the Ministry of Health carry out an epidemiological study which would allow the risks for human health to be evaluated. In mid-March, the Ministry announced that it would do so, however it appears to have forgotten its promise since the study has still not been performed.

The deterioration of the coastal areas and marine environment cannot be ignored. It is not enough to fill the beaches with machines that will clear away the lumps of fuel. The effects suffered at all levels of the ecosystem must be studied and evaluated and measures must be taken to speed its recovery.

Heavy fuel oil from the *Prestige* continues to reach the coasts of Galicia, the North of the Iberian peninsula and the French Atlantic, going beyond Brittany and even threatening the English coastline.

European Parliament report on reinforcing maritime safety following the sinking of the *Prestige* oil tanker. 15 July 2003.

An analysis of all these repercussions is the first step in preventing another *Prestige* from happening. It is essential that a serious evaluation be made of the affected ecosystems. From a biological point of view, a reduction in certain species and a decline in the marine habitat has been observed, as acknowledged in the report on the *Prestige* catastrophe that was presented to the European Parliament in September[5].

When it came to evaluating the effects, the administration clearly chose to marginalise the scientific community, right from the very start. The scientific work that has been carried out until now has not been framed within a comprehensive recovery plan organised by the public administration.

The impact of the *Prestige* according to the ministry of the environment/

Until now, the Ministry of the Environment has only offered information regarding the number of beaches affected, which has totalled 1,064 since the start of the disaster. According to these figures, on the 2nd October, 1,053 of these beaches were considered to be completely clean, 9 had remains of hydrocarbons on rocks and/or in underlying layers and 2 had fuel remains on the surface. With regard to the waste collected, by that same date 83,751.28 tonnes had been removed from the 1,900 kilometres of affected coastline. The Ministry of the Environment deals with the Islas Atlánticas National Park separately. In this area, by 19th September, 4,589.9 tonnes of waste had been removed from the land and 1,593.5 tonnes had been extracted from the seabed[6].

Nothing is said about the effects of this pollution on the affected coastal ecosystems, information is only given about the presence or absence of fuel. As of now, no information whatsoever has been provided referring to studies that are being carried out to analyse the impact and repercussions in the short, medium and long term.

Some of the steps taken by the Ministry, such as the decision to open the Islas Atlánticas National Park to tourists this summer, call into question its interest in restoring the affected environment. Shortly after it was opened, the Director of the park, Emilio Rodríguez Merino, himself admitted that the decision had been hasty and that 3,000 visitors each day were not what the islands needed in order to recover.

The Ministry of the Environment has assured that it will carry out a detailed study over three years to evaluate the exact impact of the oil slick on various parts of the Galician coast, in order to adopt, where necessary, appropriate measures[7].

The information obtained by Greenpeace limits these "various parts" to the Islas Atlánticas National Park, two other protected nature reserves in Galicia and one in each of the affected autonomous regions: Asturias, Cantabria and the Basque Country. There is no doubt that these studies will be insufficient to provide an overall understanding of the phenomenon. The Ministry of the Environment announced that it would be contracting assistance in order to complete the studies, however these contracts have still not been awarded despite the fact that the proposals were presented in August. One of the proposals came from a company chaired by Carlos del Álamo, who was removed from his post as Regional Minister for the Environment in the Galician Autonomous Government due to his poor conduct during the oil slick. To the surprise of many, the Ministry of the Environment later appointed Del Álamo as President of the Islas Atlánticas National Park.

[5]Regional Policy, Transport and Tourism Committee. Informe sobre el refuerzo de la seguridad marítima tras el naufragio del petrolero Prestige (2003/2066 (INI)). 15 July 2003.
[6]El Suceso Prestige. Ministry of the Environment. http://www.mma.es.
[7]Statement made by Elvira Rodríguez. Minister for the Environment. Ideal Newspaper. 12/08/03.

Impact upon organisms and marine communities[8]

The ecological effects of a hydrocarbon spill depend essentially on the type of habitat affected. In the case of the *Prestige*, the route followed by the ship before it sank combined with the location of the area in which it lies submerged, mean that practically all marine habitats have been and are still in danger.

One must remember that pollution is not evenly distributed in a marine context. Therefore, if we look at the ecosystem vertically, the amount of hydrocarbons increases as we approach the seabed, whereas in horizontal terms, the concentration increases as we head towards coastal areas.

Hydrocarbon spills cause different physiological and biochemical problems in the affected organisms which have consequences for their viability and reproductive success, whilst also provoking genetic alterations. As a result of these processes, their populations undergo demographic changes.

The effects of spill pollution on organisms may be classified in the following way:

- Direct lethal effects: caused by fuel impregnation or asphyxia.
- Direct sublethal effects: caused by direct contact between the pollutant and the organism, without causing death. Nonetheless, genetic, biochemical or physiological alterations do occur which may reduce viability and biological efficiency.
- Indirect effects: disruption of the ecosystem. The main processes to be affected include alterations in the habitat, changes in the relationship between predators and their prey and between competitors, alterations in productivity levels and, lastly, changes in the trophic network.

In general, there is not a lot of evidence of the direct effects of oil slicks, except in the case of catastrophic seabird mortalities, the smothering of coastal flora and fauna especially sedentary species. The other effects are much more difficult to detect, above all in the case of ocean regions, since these are habitats which are difficult to observe and in which the concentration of spilt hydrocarbons tends to be low. It is somewhat easier to identify direct effects in coastal areas where the consequences may be very serious, above all in the case of small populations.

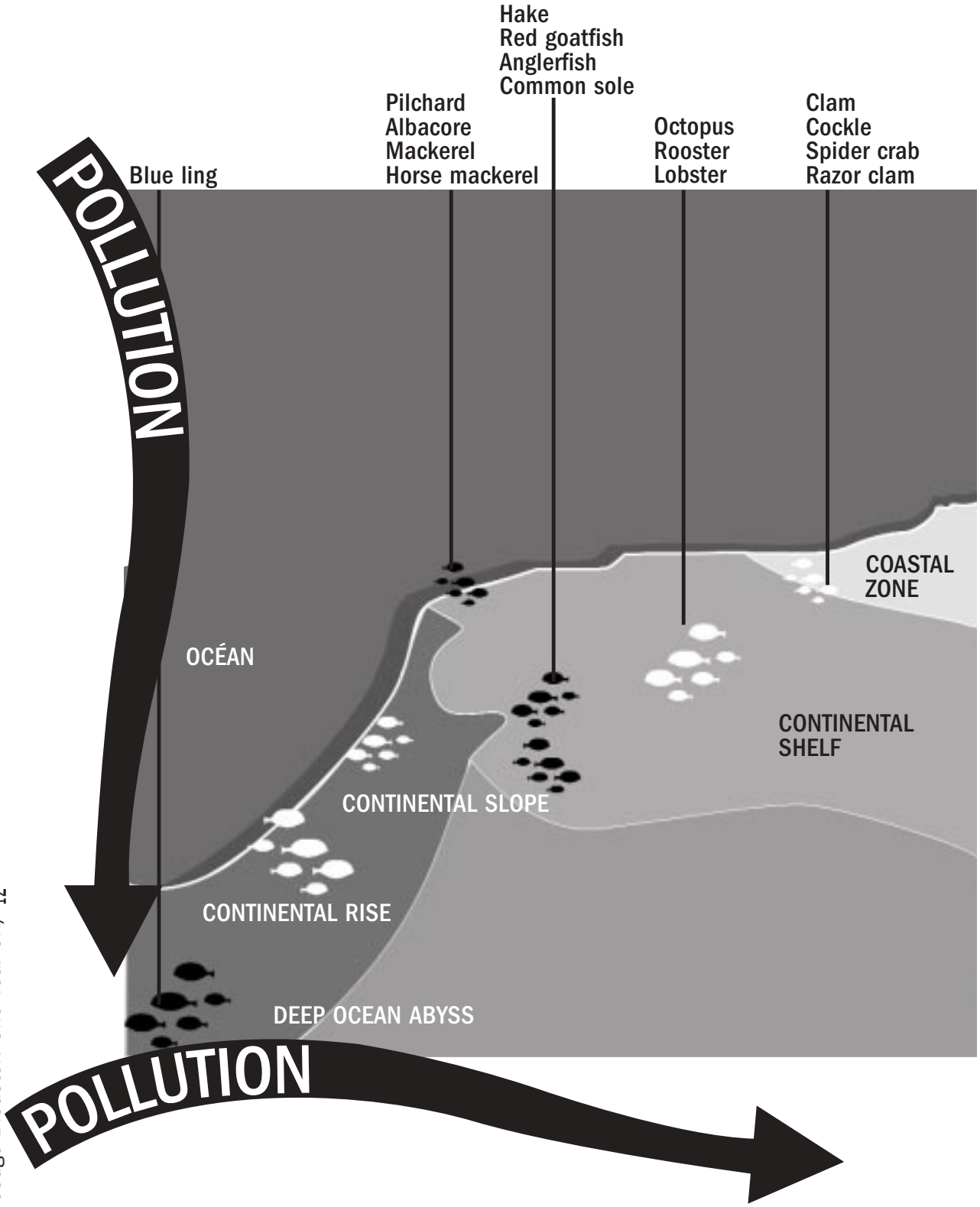
The characteristics of the *Prestige* oil slick make it reasonable to suppose that the main effects will appear in the medium and long term, since the continued presence of pollutant substances in the ecosystem means that they will enter most organisms via the food chain.

Oil slicks: direct and indirect effects/

In 1978, the Amoco Cádiz oil slick in the Brittany region of France caused almost total mortality in the first age class of various flat fish species (those born in 1978). Their natural habitat consists of sandy areas in shallow waters and a large part of the hydrocarbon was deposited in such areas, reducing their populations to minimal levels.

The work carried out in the case of the Exxon Valdez concentrated on marine mammal, bird and fish species due to their economic and/or ecological value. The results showed that very low concentrations of pollutants had toxic effects on fish larvae and embryos, with effects such as reduced growth, increased mortality or even genetic alterations which caused damaged in following generations[9]. In the case of marine mammals or birds, it was shown that the cause for the high level of pollutants was due to the fact that the diets of the species analysed contained other marine species which had been affected by the oil spill. At the same time, a reduction in reproductive success and/or an increase in mortality was observed.

[8]Freire J, L Fernández, E González-Gurriarán & R Muiño (2003). Impacto ambiental da marea negra do Prestige: efectos sobre os ecosistemas mariños e os recursos pesqueiros. Papel da comunidade científica na resposta á crise. En, ¿Qué foi do Prestige?, Balance ecolóxico e social sobre as causas e efectos do afundimento do Prestige. J. Cabrera & A García-Allut (eds.). Ed. Sotelo Blanco (en prensa).
[9]Ott. R., C. Peterson & R.Rice. Exxon Valdez oil spill (EVOS) legacy: Shifting paradigms in oil ecostoxicology.


Hake
Red goatfish
Anglerfish
Common sole
Pilchard
Albacore
Mackerel
Horse mackerel
Octopus
Rooster
Lobster
Clam
Cockle
Spider crab
Razor clam
Blue ling
POLLUTION
COASTAL ZONE
OCÉAN
CONTINENTAL SHELF
CONTINENTAL SLOPE
CONTINENTAL RISE
DEEP OCEAN ABYSS
POLLUTION

The evidence that has been gathered until now indicates that the level of hydrocarbons is relatively low throughout the Galician continental shelf. Samples taken in December 2002 detected high values only in very specific locations (south of the Vigo Ria and in certain parts of the Costa da Morte), which could lead one to believe that the situation is one of practical normality.

However, data provided by the Spanish Oceanography Institute regarding the level of polycyclic aromatic hydrocarbons (PAHs) in sediments and the presence of fuel on the seabed show very high levels of pollutants over a large part of the Galician continental shelf.

Similar patterns have been observed in the sediments of coastal areas[10].

During the month of September, the Coast Guard carried out an exploration project to investigate the Asturian, Cantabrian and Basque sea beds. The results showed that no fuel had been found, although those responsible specified that this did not mean that no fuel remained, simply that they had been unable to find it[11].

Initial data about the distribution and abundance of PAHs in marine organisms is beginning to become available[12].

DEGREE OF EXPECTED EFFECT ON CERTAIN COMMERCIAL SPECIES/

SPECIES	HABITAT	DEGREE OF EXPECTED EFFECT
Clam	Coastal area	High
Cockle	Coastal area	High
Mackerel	Pelagic (surface)	Low
Shrimp	Coastal area	Medium
Spider crab	Coastal area	Medium
Norway lobster	Continental shelf	Medium
Conger eel	Coastal area	Medium
Sea urchin	Coastal area	High
Pouting	Coastal area	Medium
Elephant Fish	Continental shelf	Medium-Low
Horse Mackerel	Pelagic (surface)	Low
Sea bass	Coastal area	Medium
Mussel (seed)	Coastal area	Very high
Hake	Continental shelf	Low
Razor shell	Coastal area	High
Velvet Swimming Crab	Coastal area	Medium-High
Common Ormer	Coastal area	Medium
Goose barnacle	Coastal area	Very high
Octopus	Coastal area	Medium
Horned Octopus	Continental shelf	Medium
Monkfish	Continental shelf	Medium-Low
Turbot	Coastal area	Medium
Sardine	Pelagic (surface)	Low
Cuttlefish	Coastal area	Medium

Source/ Impacto ambiental de la marea negra del Prestige: efectos sobre los ecosistemas marinos y los recursos pesqueros

[10]Freire J, L Fernández, E González-Gurriarán & R Muiño (2003). Impacto ambiental da marea negra do Prestige: efectos sobre os ecosistemas mariños e os recursos pesqueiros. Papel da comunidade científica na resposta á crise. En, ¿Qué foi do Prestige?, Balance ecolóxico e social sobre as causas e efectos do afundimento do Prestige. J. Cabrera & A García-Allut (eds.). Ed. Sotelo Blanco (en prensa).
[11]"No hallan fuel en los fondos marinos del Cantábrico". Gara.net. 3/09/03.
[12]Freire J, L Fernández, E González-Gurriarán & R Muiño (2003). Impacto ambiental da marea negra do Prestige: efectos sobre os ecosistemas mariños e os recursos pesqueiros. Papel da comunidade científica na resposta á crise. En, ¿Qué foi do Prestige?, Balance ecolóxico e social sobre as causas e efectos do afundimento do Prestige. J. Cabrera & A García-Allut (eds.). Ed. Sotelo Blanco (en prensa).

These results show high levels of pollutants in sessile or sedentary coastal animals (bivalves, barnacles, sea urchins) in the geographic areas affected. These animals are at the base of the food chain, therefore their contamination will enter the rest of the chain when they are consumed by other predators. The organisms situated at higher trophic levels, such as fish, decapod crustaceans or cephalopod molluscs, are affected to a lesser degree than sedentary organisms, but nonetheless they have high values in the affected area. Lastly, the results for fish and cephalopods from the continental shelf show similar patterns to those in coastal areas, although the level of pollutants is lower. It is foreseeable that the level of pollutants in predators will increase during the coming years.

The characteristics of the *Prestige* oil slick make it reasonable to suppose that the main effects will appear in the medium and long term

©GREENPEACE/ P. ARMESTRE

The case of the goose barnacle/

The goose barnacle provides an example of the huge impact caused and the complex reaction of organisms in response to an oil spill.

Each bed of goose barnacles forms a local population whose growth and reproduction rates depend on the environmental conditions and the population's density. Goose barnacle larvae are released from different parts of the coast (and, therefore, from different beds) in order to form one single larval population along a considerable length of the coast. Once they are fully developed, the individuals attach themselves to rocky habitats. This attachment is mainly done by fixing onto adult individuals, rather than directly onto the rock. Later on, they gradually move and position themselves on the rocks. If there are many adults, there is great competition for the substrata and the young barnacles do not develop.

Studies carried out on populations affected by the oil slick show that the level of polycyclic aromatic hydrocarbons (PAHs) is very high, although it has not produced catastrophic mortalities. However, the morphology of goose barnacles makes them act like a "trap" for the fuel and it is therefore likely that the degree of contamination will not diminish or will only do so very slowly.

This data highlights a situation in which the goose barnacle population presents a high level of pollutants and a high density of specimens, since their extraction has been forbidden for a long period of time. The high level of pollutants will probably jeopardise their recovery and mean that their larva production is lower than normal.

For food safety purposes, their commercial collection should be forbidden for a very long period of time. Nonetheless, active recovery work should be carried out in order to selectively extract the affected goose barnacles in order to allow the development of new non-contaminated individuals.

Impact upon the fishing industry

The administrative authorities responsible for the management of marine resources (the Galician Autonomous Government for interior waters and the Ministry of Agriculture, Fisheries and Food for exterior waters) reacted quickly with regard to the establishment of fishing and shellfishing bans in the areas affected by the arrival of the *Prestige* oil spill.

Thus, the suspension of fishing and shellfishing activities along the Galician coast was gradually decreed between 16th November and early December 2002. Later on, the other autonomous regions (Asturias, Cantabria and the Basque Country) were affected by the arrival of crude oil on their waters and coasts and were also forced to temporarily close their fishing grounds.

"The re-opening order is untouchable"

Seven senior skippers from Galician fishermen's guilds travelled to Madrid in March to attend an interview with the General Secretary for Fisheries, Carmen Fraga, and express their outright rejection of the renewal of fishing activities due to the hastiness of the measure. The response given by the fisheries representative was categorical: the order is untouchable. The fishing skippers also expressed their opinion: "This is the path of absurdity, there is no criteria. It is sheer nonsense" .[13]

The suspension of fishing activities lasted until February, at which time a gradual process was begun by which fishing areas were opened according to the fishing method and zone. This operation ended on 8th October. In most of the affected areas, fishing and shellfishing has now been resumed, in some cases against the wishes of the fishermen and -women themselves. On 7th October, the ban on shellfishing in the last stretch of the Galician coast was lifted, meaning that fishing and shellfishing activities were once again resumed along the whole of the coast affected by the *Prestige* spill.

This situation contrasts with that experienced in France following the Erika catastrophe. Despite the fact that the spill was much smaller than that of the *Prestige*, fishing and shellfishing activities were suspended for 18 months, whereas in this case, fishing was resumed after 3 months. There is no doubt that, in the case of the *Prestige*, the decision to recommence fishing activities, although based on scientific considerations, had a fundamentally political component.

The case of the octopus/

The octopus provides a good example of the side effects of the moratorium on fishing activities.

This species has a very high growth rate and, given the suspension of its capture, one may expect an increase in its overall biomass caused by the growth of individuals and the birth of new generations, added to a reduced mortality due to the absence of fishing activities.

When fishing recommenced, a considerable increase was observed in the size of the catches and the body size of the animals themselves. However, these initially large catches rapidly diminished in the areas that were open to fishing (where a great amount of fishing activity was concentrated). Within a few weeks, the size of the catches had reached all-time lows.

However, we must take into account that this type of gradual re-opening process brings with it the concentration of fishing efforts in specific areas which may quickly become over-exploited. At the same time, the precautionary moratorium constitutes a complete ban on fishing activities which should have positive effects since it allows the growth and recovery of stocks, many of which are already in a prior state of over-exploitation. This positive side effect is therefore superimposed upon the negative biological effects caused by the oil slick, making the end result difficult to predict.

[13] "El Gobierno mantiene sus planes de apertura pese al rechazo de las cofradías". 18 March 2003. http://www1.lonxanet.org.

Commercial effects

No market research has yet been published reflecting the repercussions of the *Prestige* oil slick on the consumers of sea products and, therefore, the market.

Despite this, there are a series of repercussions which can be observed since an oil slick is perceived by consumers as a sudden pollution incident which affects the products they traditionally consume.

The first predictable consequence of a catastrophe of this type is, therefore, an initial distrust among consumers towards the product in question. Until this initial mistrust is eliminated (which depends on both the evolution of the oil slick and the administration's transparent management), the demand for these items may drop considerably.

A second consequence may involve a change in the variety of goods supplied and consumer preferences, due to the appearance of alternative, substitute products:

- Commercial species already known to the consumer but from a different geographical origin. This could include the Scottish velvet swimming crab, French spider crabs, Moroccan octopuses and sardines, etc.

- Preference for new species, whose quality and low prices may make them attractive to consumers.

- The appearance of aquaculture products in the marketplace, which undermine the demand for "wild" products.

Another point that must be taken into account is that many sea products are recognised, at both a national and international level, as high-quality products and are, therefore, intended for a high-priced market based on consumers of this type of product (which in many cases explains the profitability of the fishing industry). It is possible that the serious pollution caused by the *Prestige* may hugely damage these products, something which would provoke a serious crisis in the sector.

©GREENPEACE/ JUAN FELIPE CARRASCO

The seriousness of the crisis will vary according to the importance of the fishing sector. Without doubt, Galicia will be the most affected, due to the extent of the oil slick's impact and the importance of the fishing sector in its economy.

The Galician fishing sector's production represents one third of national production. This percentage increases to 40% if we look at the economic value of the product. It supplies 64% of molluscs and 30% of fish. Employment in its fishing sector provides more than half of the fishing jobs in the country. The total number of Galician boats represents around 50% of the Spanish fleet. 51% of the traditional Galician fleet, the fleet most affected by the temporary ban on activities as a result of the pollution caused by the oil spill, is to be found in A Coruña, the area which has, in turn, suffered most due to the *Prestige* oil spill.

The fishing sector is less important in the other regions affected by the oil slick, however they all have a strong fleet which provides wealth and employment. In Asturias, the traditional fleet consists of 464 boats which produce 39 million euros per year, to which one must add the income earned by other activities such as aquaculture, shellfishing, canning, the marketing sector and other associated activities. The situation of Cantabria and the Basque Country is similar. In the latter, the traditional inshore fleet consists of 325 boats which provide direct employment to more than 2,300 people and produce 91 million euros per year.

The official figures of the Galician Autonomous Government estimate that the Galician GDP will fall by 0.5% in relation to the previous year[14].

The initial figures produced by the Pontevedra Chamber of Commerce have estimated a loss of 1,390 million euros in the Galician fishing sector and processing industry[15].

The losses are distributed in the following way[16]:

- **Shellfishing: 90% loss (54 million of the 60 predicted)**
- **Extractive fishing: 80% loss (176 million of 220 predicted)**
- **Aquaculture: 75% loss (90 million of 120 predicted)**
- **Marketing sector: 40% loss (700 million of 1,750 predicted)**
- **Canning industry: 30% loss (255 million of 850 predicted)**
- **Frozen-food industry: 10% loss (70 million of 700 predicted)**

©GREENPEACE/ PEDRO ARMESTRE

[14]"La marea negra provoca una drástica caída de los créditos". http://www.masmar.com/articulos/art/113,1534,1.html
[15]Galician Chambers of Commerce. Informe sobre los sectores afectados por el Prestige: Problemas empresariales y propuestas de situación. 2003. The figures come from the data provided by the Regional Ministry of Fisheries and Maritime Affairs and the Report for the European Union Classification of Galicia as a Region Highly Dependent on Fishing.
[16]The figures come from the data provided by the Regional Ministry of Fisheries and Maritime Affairs and the Report for the European Union Classification of Galicia as a Region Highly Dependent on Fishing.

Food safety

An important number of the living organisms directly affected by the oil slick form part of the food resources that humans have exploited for many generations in order to obtain food.

The magnitude of the *Prestige* catastrophe makes it impossible to cover all the related food safety issues, therefore it is essential to increase the analytical and control efforts in those areas or resources which are, by nature, more likely to be contaminated.

Following the oil spill caused by the Exxon Valdez in Alaska in 1989, the U.S. Food and Drug Administration (FDA) drew up a protocol for risk assessment, as well as a set of recommendations about the condition of the food resources in the affected area, with regard to the level of dangerous pollutants such as polycyclic aromatic hydrocarbons (PAHs) to be found in their tissues[17].

The existing legislation on safe PAH limits in food, particularly fish and seafood in both Spain and the European Union, is extremely limited, whereas in other countries such as the U.S. and Canada considerable progress has been made both in terms of prevention and the development of oil slick management strategies which include food safety issues.

In the case of Spain, there exists only one legislative reference, made in relation to olive pomace oil[18]. Although this is the only national legislation that exists regarding limits for PAHs in food, it represents official recognition of its potential toxicity.

As a result of the *Prestige* disaster, the Galician Autonomous Government has begun to monitor PAHs in marine resources and has established criteria regarding safety limits[19]. These coincide with those used in the European Union but do not include 10 of the 16 compounds that are classified as potentially carcinogenic by the U.S. Environmental Protection Agency (EPA).

Between 8th January and 5th June 2003, the Spanish Food Safety Agency[20] carried out a study of the presence of polycyclic aromatic hydrocarbons (PAHs) in fishing products from the entire length of the coast affected by the accident. The results of the analysis show that some of the fish, crustacean and cephalopod samples contain toxic substances which prohibit their consumption, thereby reducing fishing sector profits even further. Nonetheless, the results obtained are amazingly good.

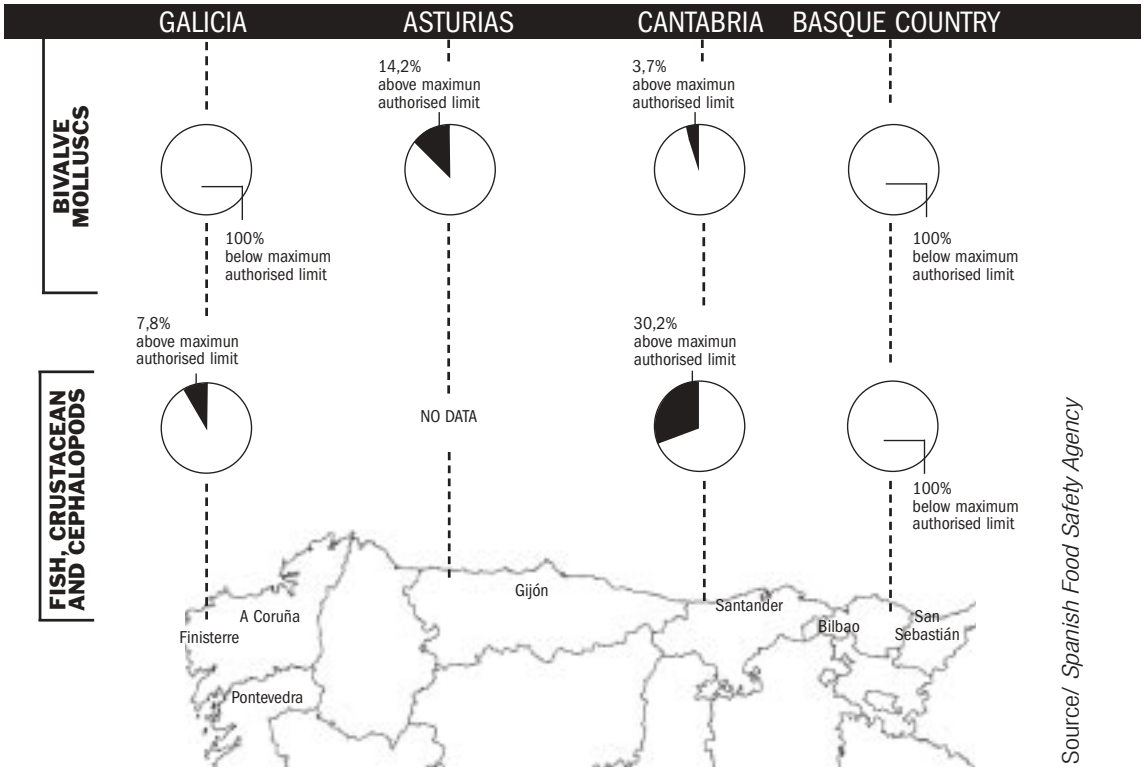
PAHs represent 46.4% of the composition of the 77,000 tonnes of fuel stored in the *Prestige*. The International Cancer Agency classifies PAHs as type "2b", which means that there exists sufficient proof of their carcinogenic effect on laboratory animals but the proof of carcinogenic effects on humans is insufficient.

The results of the study show that in Cantabria 30.23% of the fish, crustacean and cephalopod samples analysed contained higher amounts than the maximum limits allowed for human consumption. The analysis carried out on samples of bivalve molluscs (clams, mussels, oysters, limpets, etc) showed that 3.77% of the total exceeded the maximum limits established

[17]Yender R., J. Michel & C. Lord (2002). Managing seafood safety after an oil spill. Seattle: Hazardous Materials Response Division. Office of Response and Restoration, NOAA.
[18]The Ministry of Health and Consumer Affairs lists 8 PAHs to determine the suitability of olive pomace oil for consumption, establishing a maximum limit of 2mg/kg of oil for each individual compound and 5 for the compounds in total.
[19]Freire J, L Fernández, E González-Gurriarán & R Muiño (2003). Impacto ambiental da marea negra do Prestige: efectos sobre os ecosistemas mariños e os recursos pesqueiros. Papel da comunidade científica na resposta á crise. En, ¿Qué foi do Prestige?, Balance ecolóxico e social sobre as causas e efectos do afundimento do Prestige. J. Cabrera & A García-Allut (eds.). Ed. Sotelo Blanco (en prensa).
[20]Repercusiones del vertido del Prestige en la Seguridad Alimentaria (2003). Spanish Food Safety Agency. Ministry of Health and Consumer Affairs. http://www.msc.es

for PAHs21[21]. However, in Galicia, the region most affected by the toxic spill, only 7.87% of the fish, crustaceans and cephalopods analysed contained traces of fuel greater than those allowed, whereas 100% of the bivalves contained no notable remains of polycyclic aromatic hydrocarbons. In Asturias, 14.5% of bivalve molluscs had a PAH content higher than the guide values. In the Basque Country, no fuel remains were found in any species. These results are official, however this does not make them any less surprising.

PRESENCE OF PAHs IN FISHING PRODUCTS/



Source/ *Spanish Food Safety Agency*

MAXIMUM PAH LIMITS:
0.2 mg/kg of dry weight for PAH total in molluscs, crustaceans and cephalopods and 0.02 mg/kg of dry weight for fish.

SPECIES ANALYSED:
Mussel, cockle, oister, limpet, clam, goose barnacle, octopus, horse mackerel, mackerel, mergrim, rooster, blue whiting, turbot, pilchard, hake, sea urchin, crab, spider crab and fiddler crab.

[21]Maximum PAH limits: 0.2 mg/kg of dry weight for PAH total in molluscs, crustaceans and cephalopods and 0.02 mg/kg of dry weight for fish.

Repercussions for the tourist sector

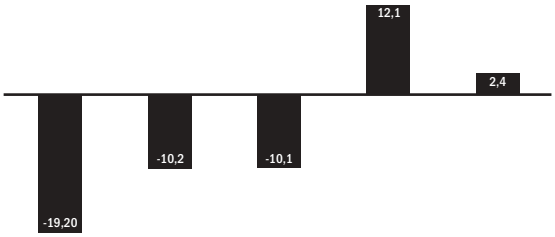
The tourist sector is possibly, together with the fishing industry, one of the sectors worst affected by the environmental disaster. The importance of this sector is by no means insignificant, since overall it represents 12% of Spain's Gross Domestic Product (GDP).

The statistics for this summer represent the first indications of the repercussions for the tourist sector. They show that tourist figures have not been good in the coastal regions that have been affected by successive oil slicks from the *Prestige*. The general tendency of the regional governments has been to minimise and even deny the existence of any "*Prestige* effect" on the tourist sector, despite, for example, directly witnessing the withdrawal of all the blue tourist "blue flags"[22].

If one compares the figures provided by the National Statistics Institute for the months of July and August of this year and 2002, a decrease in hotel occupancy levels can be observed. The autonomous region that has most suffered is Galicia, followed closely by Cantabria. Asturias has experienced a less significant decrease and the Basque Country has been the least affected.

The figures provided by the State Department for Commerce and Tourism regarding the arrival of foreign tourists show an even sharper decline. Almost all of the regions affected by the oil spill have lost foreign visitors this year. The worst affected was Asturias, with a 19.2% fall in relation to 2002, followed by Galicia with 10.2% and Cantabria which suffered a drop of 10.1%. Only the Basque Country registered an increase of 12.1% upon the previous year, following the same tendency as the rest of Spain which experienced an overall increase of 2.4%.

PRESENCE OF FOREIGN TOURISTS
DIFFERENCES BETWEEN 2002 & 2003



Asturias	Galicia	Cantabria	Basque Cty.	Spain
-19,20	-10,2	-10,1	12,1	2,4

Asturias and Cantabria have asked the government to develop a strategic plan for the tourist sector, however the central administration has not yet presented any such document.

HOTEL OCCUPANCY LEVELS IN THE COASTAL REGIONS AFFECTED BY THE *PRESTIGE* OIL SPILL/

	July 2002	August 2002	AVERAGE 2002	July 2003	August 2003	AVERAGE 2003	DIFFERENCE %
ASTURIAS	45,76	70,91	58,34	43,43	69,94	56,69	- 1,65
CANTABRIA	53,95	74,71	64,33	49,98	71,51	60,75	-3.58
GALICIA	43,48	64,33	53,91	39,45	60,22	49,84	-4.07
EUSKADI	54,19	66,65	60,42	53,80	64,52	59,16	-1.26

Source/ *National Statistics Institute*

[22]The Blue Flag Campaign is owned and run by the Foundation for Environmental Education (FEE). The award of a European Blue Flag beach is based on compliance with 27 criteria (water quality, environmental education and information, environmental management, safety and services).

Social repercussions: the case of the Galician Coast[23]

Of the 2,750,000 inhabitants of Galicia, one and a half million live next to the sea in little over 10% of the territory. The inhabitants of the coastal communities were those to be first and most affected by the *Prestige* catastrophe.

The fishing sector that works along the Galician coast has suffered the most, in both social and economic terms. In Galicia, fishing has an enormous economic, social and cultural importance. For each fisherman or woman who works on the sea, three more jobs are created in other related activities. In total, this involves 120,000 people and represents 12.2% of all employment in Galicia[24].

The Galician inshore fleet consists of over 6,000 vessels, most of which are less than 10 metres in length. This fleet performs its work along a 1,200 kilometre stretch of coast, going from the intertidal area to a distance of 25 miles, in a coastal ecosystem that is characterised by its great biodiversity, variability and spatial complexity. This is reflected in the classification of extractive activities which range from fishing, in its strictest sense, to harvesting activities, which include a wide variety of trades: shellfishers who work on the beach, in shallow waters or from boats, barnacle collectors, razor-shell collectors, sea urchin collectors, mussel seed collectors, polychaete collectors and gatherers of various seaweed species. In terms of fishing activities, the fishermen/women alternate various methods throughout the yearly cycle in order to catch a wide variety of species. In total, over 40 different methods are used to catch approximately 135 fish species.

The crews of the coastal fishing vessels range between one and four fishermen/women who are usually related in some way. This pattern further worsens the repercussion of a catastrophe such as that of the *Prestige* since it weakens the mutual help network and concentrates the effects of the impact in domestic units with family ties.

The socio-economic balance of many fishing communities depends directly on fishing and shellfishing activities and in many of them this represents the main source of employment.

The greater the dependency of the population on the affected natural resources, the more vulnerable the socio-economic structure of the fishing community becomes

It is clear that in the case of many Galician fishing communities, the repercussions of the *Prestige* oil spill on the social and economic structure will take their toll over time. The problem is greater in those cases where no alternative employment exists.

Right from the start of the crisis, the public authorities provided the affected fishermen and women with a financial aid system to lessen their hardship during the period of inactivity imposed as a result of the hydrocarbon spill. The shellfishers and sailors received 40 euros a day. These subsidies came to an end when the fishing areas were re-opened. Although this assistance lessens the economic effects in the short term, it does not resolve them or prevent the deterioration of the marine ecosystem and the market from taking its toll. Indeed, not long after returning to work, the fishing community complained of the scarcity of the catches and the small size of the animals caught.

For various reasons, traditional inshore fishing constitutes a socially, politically and economically dismembered sector. The great spatial dispersion of the fishing communities along the length of the coast makes it difficult for them to interrelate. The sector's problems are perceived locally and this leads to solutions

[23]Antonio García-Allut. (2003) "O Prestige e As Comunidades Pesqueiras". Humanities Department, University of A Coruña.
[24]Regional Fisheries Ministry of the Galician Autonomous Government. 2002.

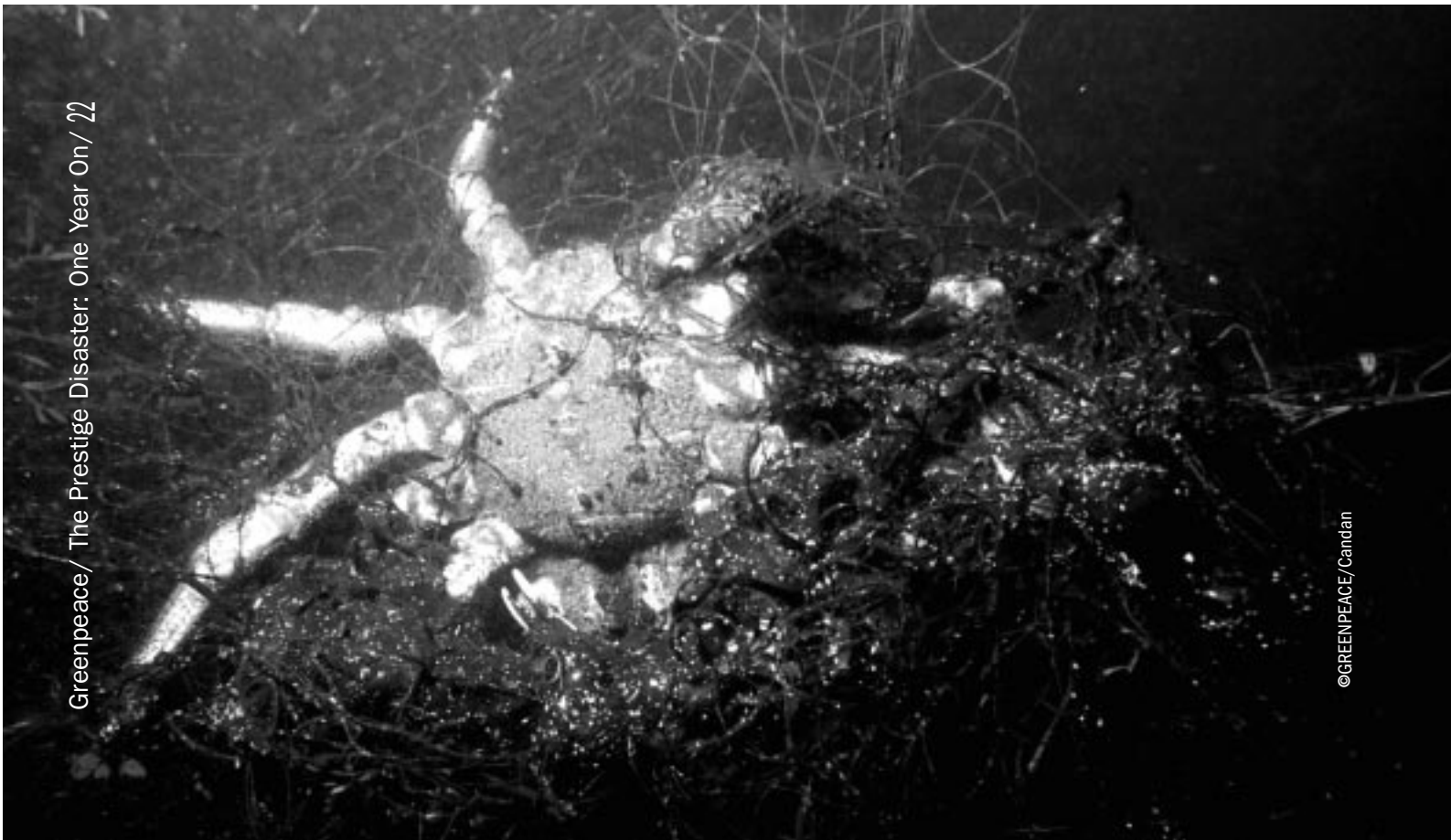
that are created within and for a specific location. The diversity of the methods used and the species caught generates internal friction and conflict.

Local problems are dealt with by each of the 63 Galician fishermen's guilds. Each one functions as an autonomous and separate entity in relation to the others, thereby complicating the joint resolution of common problems that affect them all. The guilds are organised into provincial federations but there is no Galician federation of guilds to unite them all.

However, when faced with the *Prestige* catastrophe, the sector's initial reaction was to join forces in fighting the problem. A few days after the disaster, a Committee of Affected Guilds was created to defend the interests of the affected fishermen and women. This currently encompasses 48 guilds. A further seven guilds are in the process of constituting another co-ordinating body. The rest do not consider themselves to be affected by the oil slick.

The objectives of the committee of guilds focussed first and foremost on defending the economic and social interests of those affected. They presented a claim to the IOPC Funds, the organisation responsible for compensating those affected by hydrocarbon spills. The amount requested (130 million euros) was calculated on the basis of the income that all the fishermen and women would cease to earn during the period of inactivity. This amount did not take into account the intangible aspects of the disaster, such as social costs, the impoverishment of the coastal ecosystem or the repercussions of pollution on the future of the fishing industry. In order to avoid any delay in the payments, the Committee reached an agreement with the Administration according to which the latter would advance the stipulated amount to the sector and later negotiate with the IOPC Funds or make a legal claim against those responsible.

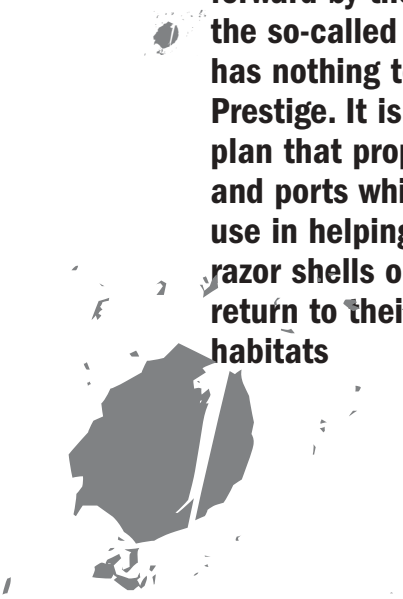
Together with the claim, the Committee signed a series of collaboration agreements with the Universities of A Coruña and Santiago de Compostela in order to obtain independent scientific information regarding the level of pollution in the affected species, as well as an evaluation of the economic and social damaged caused by the spill. Likewise, it participated in social revitalisation and environmental recovery projects intended to encourage the development of the fishing sector and a rational and responsible use of resources.



The *Prestige* demands solutions

An oil slick provokes an environmental crisis that affects a huge number of economic sectors and mobilises extremely diverse social forces. It also requires fast responses which will minimise its effects, a rigorous evaluation of the damage caused and the restoration of the affected ecosystems.

The *Prestige* catastrophe has highlighted the absence of contingency plans or, at least, the lack of capacity to carry out such plans. The fact that this situation has arisen in an area which has already suffered several serious oil-related catastrophes is, without doubt, an aggravating factor which is hard to explain to the thousands of people affected. The slowness of the response given by the different administrative bodies does not help to lessen the effects of the catastrophe. Solutions must be implemented without delay and must cover all relevant aspects.



The only plan so far put forward by the Administration, the so-called "Plan Galicia", has nothing to do with the Prestige. It is an infrastructures plan that proposes roads, trains and ports which will be of no use in helping goose barnacles, razor shells or octopuses to return to their oil-affected habitats

The only plan so far put forward by the Administration, the so-called "Plan Galicia", has nothing to do with the *Prestige*. It is an infrastructures plan that proposes roads, trains and ports which will be of no use in helping goose barnacles, razor shells or octopuses to return to their oil-affected habitats.

The other measures presented by the Spanish executive during the year that has passed since the start of the catastrophe have been aimed at reducing the environmental impact in areas affected by the hydrocarbon pollution. However, none of them deal with the urgent need to restore (a much more complicated concept than that of cleaning) the 2,000 kilometres of coastline damaged by the *Prestige* spill.

The apathy shown by the public administration becomes clear if one examines the efforts made in terms of financing. According to several sources close to the government, the funding for the research carried out by the Ministry of Science and Technology to evaluate the catastrophe amounts to less than 10 million euros[25]. In the case of the Exxon Valdez oil slick,[26] the evaluation costs totalled 214 million dollars, besides another 180 million that was invested in research and monitoring. In other words, forty times the budget allocated for the *Prestige* oil slick.

[25]Freire J, L Fernández, E González-Gurriarán & R Muiño (2003). Impacto ambiental da marea negra do Prestige: efectos sobre os ecosistemas mariños e os recursos pesqueiros. Papel da comunidade científica na resposta á crise. En, ¿Qué foi do Prestige?, Balance ecolóxico e social sobre as causas e efectos do afundimento do Prestige. J. Cabrera & A García-Allut (eds.). Ed. Sotelo Blanco (en prensa).
[26]Paine R.T., J.L. Ruensink, A.Sun, E.L.Sounlanille, M.J.Wonham, C.D.G.Harley, D.R. Brumbaugh & D.L. Second (1996). Trouble on oiled waters: Lessons from the Exxon Valdez oil spill. Annual Review of Ecology and Systematics 27: 197-235.

Solutions for the recovery of the coastal and marine ecosystems affected by the *Prestige* oil spill

The recovery of the coastal and marine ecosystems affected by the *Prestige* disaster cannot simply be left in nature's hands. There exist many studies, research projects and action protocols taken from similar cases of oil slicks throughout the world. The fundamental steps to be taken are as follows:

- Evaluation of the impact caused by the *Prestige* oil slick.
- Environmental monitoring of the repercussions in space and time.
- Protection of the most valuable areas in order to speed up recovery.

The report on the *Prestige*[27] that was presented before the European Parliament last September underlines the need to carry out an evaluation of the impact caused by the accident, placing special emphasis on environmental recovery. One year after the disaster, this European Union demand has still not been undertaken by the Spanish government, which attempts to avoid its responsibilities at all costs by affirming that the catastrophe has been "overcome"[28].

However, a study carried out by over 40 professors and doctors from Galician universities estimates that it will take 10 years for the areas affected by the *Prestige* oil spill to return to normal, whilst a return to biological normality could take until the year 2015[29].

Despite these alarming figures, no recovery plan has been announced for the areas affected by the *Prestige* spill. We are not referring to the cleaning away of the most visible hydrocarbon waste but rather the restoration of all damaged areas and the recovery of the animal and plant populations that were devastated by the oil slick, something which would doubtlessly contribute to the recovery of the economic and social sectors whose existence is linked to the coast.

It is crucially important to develop an environmental monitoring system which allows real-time data to be gathered about the evolution of the slick and the affected ecosystems, with adequate spatial and temporal coverage in order to predict the evolution of the pollutants and their ecological effect

The protection of areas of great biological value will speed up the recovery of the ecosystem as a whole. There exists widespread scientific consensus regarding the beneficial effect of establishing protected marine reserves. They are more and more frequently used as one of the most powerful tools with which to fight the environmental deterioration suffered by oceans. This conservation and management method becomes even more necessary when dealing with a disaster as serious as that caused by an oil slick on the Atlantic and Cantabrian coasts. At an international level, there exist a number of treaties and conventions which provide for the establishment of protected marine reserves[30].

The International Convention for the Prevention of Pollution from Ships, otherwise known as MARPOL 73/78 and signed by Spain in 1979, aims to limit the amount of hydrocarbon waste that enters the sea and ensure that ports possess suitable facilities for dealing with oil

[27]Regional Policy, Transport and Tourism Committee. Informe sobre el refuerzo de la seguridad marítima tras el naufragio del petrolero Prestige (2003/2066 (INI)). 15 July 2003.
[28]"Galicia ha superado los daños del Prestige" (Galicia has overcome the damage caused by the Prestige). Xosé Antón Orza, Regional Economics Minister for the Galician Autonomous Government. 'Expansión' newspaper. 17/10/03.
[29]El Impacto del Prestige. Análisis y Evaluación de los daños causados por el accidente del Prestige y dispositivos para la regeneración medioambiental y recuperación económica de Galicia. Galician Economic Studies Institute, Pedro Barrié de la Maza.
[30]For more detailed information about international agreements regarding protected marine reserves, see Appendices.

Article 194 of the Law of the Sea[31] states the need to take the measures that are necessary in order to protect and conserve special or vulnerable ecosystems, as well as the habitats of species and other forms of marine life which have been decimated, threatened or are in danger.

waste. This convention is approved by the International Maritime Organisation and specifies the establishment of "special areas" in which, for technical reasons related to oceanographic and ecological characteristics, as well as the maritime traffic that they withstand, obligatory regulations for the prevention and control of sea pollution must be implemented. Nine areas have so far been designated: the Baltic Sea, the Mediterranean Sea, the Black Sea, the Red Sea, the Persian Gulf area, the Gulf of Aden, the Antarctic Ocean, the North Sea and the Great Caribbean area. These special areas benefit from stricter regulations and it is forbidden for any kind of ship to dump hydrocarbons or oil mixtures in their waters.

The Oslo and Paris Convention for the Protection of the Marine Environment of the North-East Atlantic, known as OSPAR, includes among its areas of work a Strategy on the protection of the ecosystems and biological diversity of the maritime area. The aim of this strategy is to protect and conserve marine ecosystems which are, or could be, affected by human activities. To this end, the members of this convention, including Spain, have proposed the creation of a network of protected marine reserves within the OSPAR area. This network will also include areas that the European Union member states designate as Special Areas of Conservation according to the EU Birds and Habitats Directives. The timescale for adopting this network of protected marine reserves is 2010.

The United Nations' International Maritime Organisation (IMO)[32] establishes the so-called "Particularly Sensitive Sea Areas" (commonly referred to as PSSA) for areas which require special protection because of their importance, due to ecological, scientific or socio-economic reasons, and may be susceptible to damage caused by international maritime activities. Currently, there exist six: the Great Barrier Reef in Australia (1990), the Sabana-Camagüey Archipelago in Cuba (1997), the Malpelo Island in Colombia (2002), Florida Keys in the United States (2002), the Wadden Sea in Denmark, Germany and Holland (2002) and the Paracas National Park in Peru (2003). The Nordic and Baltic transport ministers recently backed the proposal to designate the Baltic Sea as the seventh "Particularly Sensitive Sea Area", with the aim of "preventing oil slicks in the area such as those caused by the Erika and the *Prestige*".

In April 2003, the Spanish government, together with five other countries (the United Kingdom, France, Portugal, Ireland and Belgium) presented the Marine Environmental Protection Committee of the International Maritime Organisation with an initiative for the establishment of a Particularly Sensitive Sea Area from the south coast of Portugal to the north of the Shetland Islands in Scotland. This area therefore includes the Galician and Cantabrian coasts. The "West European PSSA" also includes two important passageways for international shipping traffic, the Faeroe Islands' channel, to the north of the United Kingdom, and the English Channel, between the United Kingdom and France.

The proposal seeks to ban the passing of single-hull tankers which transport heavy crude oil, heavy fuel oil, bitumen, tar and their emulsions within the boundaries of the protected sea area. Countries such as Russia, Greece, New Zealand, Panama, Brazil, Liberia and Argentina have strongly opposed this declaration, claiming that the specified area is sensitive to many other threats besides that of single-hulled shipping traffic.

Another argument used to oppose this protected sea area is that it will affect the routes followed by tankers and will force them to alter their course and sail through areas of great ecological value, thereby increasing the risk of disasters.

[31]United Nations' Convention on the Law of the Sea. Spain has formed part of this convention since 1982.
[32]The International Maritime Organisation is a Specialist Agency of the United Nations which is responsible for ensuring maritime traffic safety and protecting against marine pollution from ships. Web page: www.imo.org

Other nations such as India, Canada, the United States, Singapore, Norway and Cuba have also expressed their reluctance to designate this stretch of the Atlantic as a protected sea area, both due to its vast dimension and the risk that it involves for other coastal countries since it would increase the number of dangerous ships that pass along their coasts[33]. The decision of the International Maritime Organisation in relation to this proposal will be announced in 2004.

The IMO considers expelling Greenpeace/

The IMO must accept its responsibilities and protect the planet's seas and oceans from all the threats that are currently posed by maritime traffic. Greenpeace has formed part of the IMO, as an observing body, since 1991. In June of this year, following complaints presented on behalf of the industry and certain countries (not clearly identified) regarding the environmental protest activities that Greenpeace has been carrying out for over 30 years, the International Agency considered its expulsion. The final decision will be taken in a meeting which will be held at the end of November.

The discrepancies between all these countries serve to demonstrate the scarce importance that countries give to the environment, as well as the hypocrisy that surrounds international agreements and agencies. In the case in hand, some countries (including some recognised flags of convenience) prefer not to protect an area that is seriously threatened by oil slicks, arguing that there exist other threats or that the area to be protected is too large, despite being aware of the risks involved. However, they avoid dealing with the root of the problem and say nothing about those who are really to blame: the thousands of ships that sail all around the world

[33]This is a recurring problem. When the Exxon Valdez accident took place in Alaska, the United States toughed its laws to ban the passing of single-hull tankers through its waters, which meant that this kind of vessel moved to Europe.

and whose deplorable conditions turn them into genuine time bombs ready to ruin the way of life of thousands of people. The International Maritime Organisation establishes protective measures but the member states do not want to implement them if this will affect the huge interests that control the world-wide traffic of hazardous substances, even when this has just caused an episode of environmental, economic and social destruction along 2,000 kilometres of coast in the Iberian Peninsula.

We do not know what decision the International Maritime Organisation will take, but even if this protected marine area is approved in October of next year, the measure is insufficient to recover the area affected by the oil slick, since the other threats will continue to exist, as is acknowledged by many countries. The *Prestige* serves as a good example to demonstrate that the distancing of maritime traffic is not, in itself, a solution to the problem. Despite the fact that the ship sank 130 miles away from the peninsular coast, this distance only meant that the area affected was much greater than if the accident had occurred in a closed bay. Moreover, when a ship finds itself in difficulty at a great distance from the coast, it takes longer to go to its rescue and the likelihood of a disastrous outcome becomes greater.

Furthermore, if the declaration of a protected sea area is not accompanied by other technical measures then it will not provide any real protection

In this case, it would only give a legal status to the regulatory measure established by the European Union to forbid the entry of single-hulled ships transporting certain substances into its ports. What is more, the protective measure for the area has not been agreed with the fishing community nor with scientific bodies. Nor have the most valuable natural areas which must benefit from strict protection been identified.

The Spanish government has a duty and obligation to implement all necessary measures within its sphere of activity, where it cannot be denied the right to create protected areas which will help to prevent new catastrophes and will benefit the environmental and economic recovery of the affected areas.

At an international level, the European Union provides for the establishment of protected natural areas, but there exists no specific or distinct status to protect marine areas.

The regulations referring to protected marine areas are contained within two directives: Directive 79/409/EEC, concerning the conservation of wild birds[34] and, above all, Directive 92/43/EEC[35] concerning the conservation of natural habitats[36], whose objectives are to contribute to guaranteeing biodiversity through the conservation of natural habitats, wild flora and fauna in the European territory of the member states. The practical implementation of these two Directives for Birds and Habitats has led to the creation of a European environmental network called "Natura 2000",[37] consisting of the so-called "Special Protection Areas" (SPAs).

The importance of the areas that constitute the Natura 2000 Network is explained in the report about the *Prestige*[38] that was presented in the European Parliament in September, which demands an evaluation of the negative environmental repercussions, placing special emphasis on the sites proposed for inclusion within the Natura 2000 network and natural areas of environmental interest which lie within the area affected by the oil slick.

Similarly, the European Parliament report:

- Requests the immediate fulfilment of the Directive relating to habitats in areas of environmental interest located in the corresponding coastal regions of the EU and their immediate inclusion in the Natura 2000 network.

[34]This Directive designates Special Protection Areas for Birds or SPABs.
[35]Later modified by Directive 97/62/EC, concerning the conservation of Natural Habitats and Wild Fauna and Flora.
[36]This Directive designates Sites of Community Importance or SCIs.
[37]The Natura 2000 Network should have been in operation since 2000, as its name suggests, but the delays suffered by practically all countries in providing a list of important sites and the presentation of incomplete lists has hugely delayed the implementation of this European network of protected areas.
[38]Regional Policy, Transport and Tourism. Informe sobre el refuerzo de la seguridad marítima tras el naufragio del petrolero Prestige (2003/2066 (INI)). 15 July 2003.

- Reiterates the requests approved in its resolutions of 21st November 2002 regarding the *Prestige* oil tanker catastrophe off the coast of Galicia and 19th December 2002 regarding the catastrophe caused by the *Prestige* oil tanker, to create sensitive European fishing-maritime areas, chosen as a result of their great fishing and shellfishing wealth and the high dependency of their populations on these resources.

Despite this request, Spain has still not announced any proposals for evaluation, recovery and protection in this sense.

We can affirm that, in general, the protected sea areas strategy is not in very good health due to three factors: the scarce number of protected marine reserves, which makes it impossible to provide effective protection, the small size of many of the protected areas, a limiting factor when it comes to enjoying the benefits provided by protected marine reserves, and the lack of real protection provided for them, since in many cases there barely exists any form of surveillance or control and the protection that they supposedly receive is not enforced.

At the end of 2002, Spain possessed 874[39] protected areas, of which only 19 correspond to protected marine reserves. The creation of protected marine reserves in Spain has not been the result of an objective analysis of conservation and management needs, it has instead been the consequence of opportunistic motives, in an attempt to avoid socially conflictive situations.

The combination of coastal laws affecting the land environment and those affecting the marine environment creates a complex legislative situation in which the responsibility for certain territories is assigned to different administrative authorities (fundamentally regional and national). These legislative divisions do not coincide with the maritime-coastal ecoregions and create "artificial" administrative divisions within the existing environmental units.

Another fact to bear in mind is that the majority of marine areas with some form of legal protection are to be found in the Mediterranean and, to a lesser degree, in the Canary Islands. In contrast, the protected areas on the Atlantic coast are much fewer in number and much smaller in size, despite the Islas Atlánticas on the Galician coast being declared a National Park in the year 2002[40].

This geographical imbalance in the degree of protection is not based on ecological worth, since that of the Atlantic and Cantabrian coastline equals or exceeds that of the Mediterranean. We must seek an explanation for this disproportion in social, economic, political and administrative areas. Differences in how and to what extent protected marine reserves are used and an understanding of their usefulness as a management and conservation tool have created a socio-economic and administrative context in the Mediterranean and the Canary Islands which favours the protection of coastal and marine areas.

The administration should have been aware of this inequality and should have taken steps to equal the balance, however it has permitted a situation in which the Atlantic, a coastal area with many fishing grounds, has not one single marine reserve.

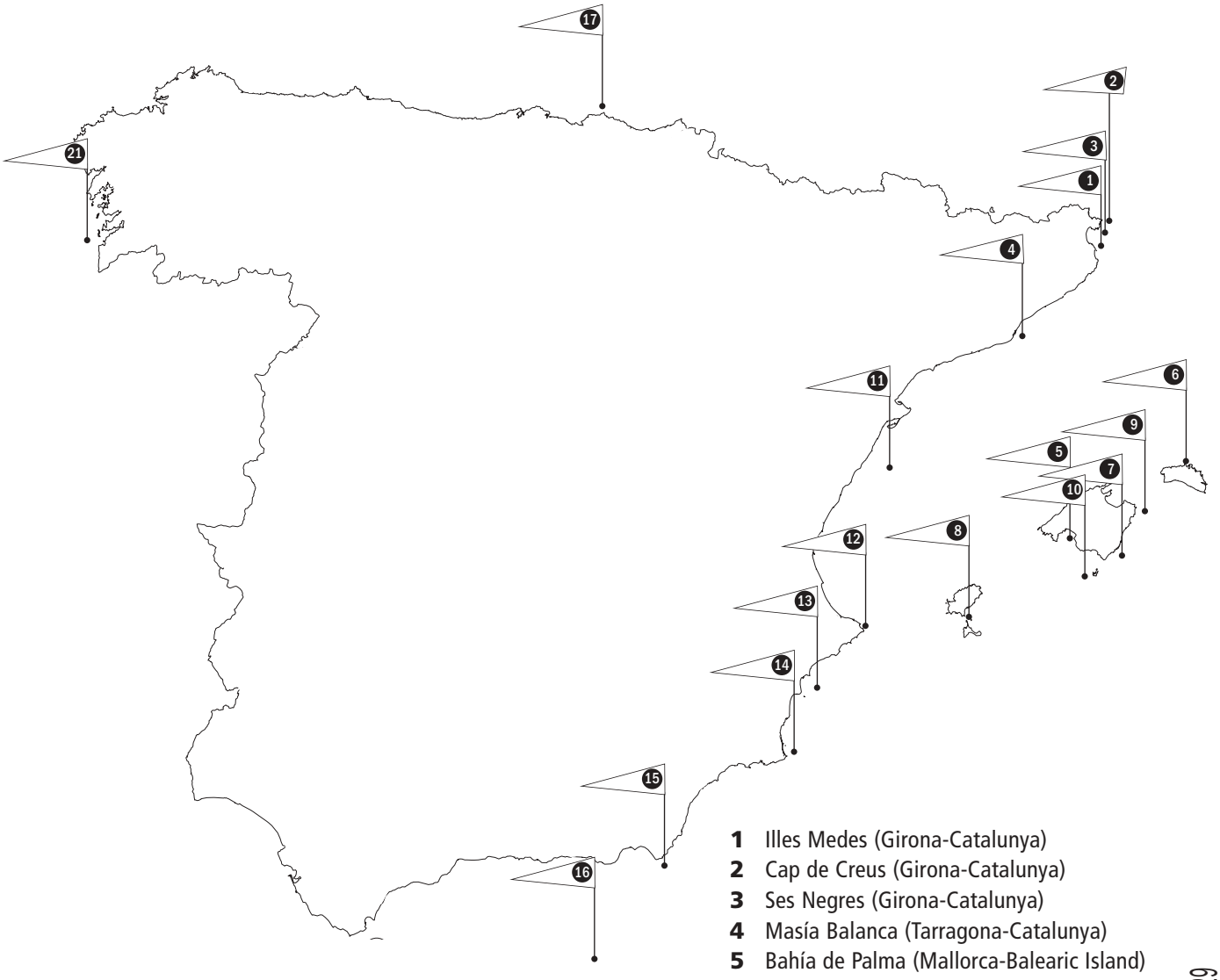
Without doubt, the vulnerable situation of this coastline has been aggravated by the impact of the *Prestige* oil slick, whose fuel oil has buried a good part of some exceptionally valuable marine and coastal ecosystems of great natural wealth and biodiversity.

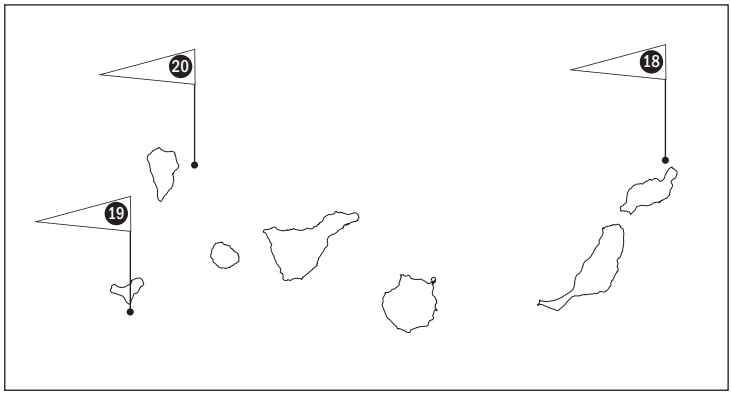
The Spanish government has not presented a single proposal for the protection of natural maritime and coastal areas affected by the oil slick, despite the international scientific community's recognition of the benefits that this protection would provide.

Existing scientific information justifies the establishment of protected marine reserves with total protection as a key management tool for coastal and marine ecosystems. The protection of the most valuable areas from all the threats that they face would bring about a substantial improvement in their natural state and would allow them to act as true "Noah's arks", exporting biodiversity to the other coastal and marine areas affected.

[39]EUROPARC-España yearbook on the condition of protected natural areas 2002.
[40]The Islas Atlánticas National Park includes the marine areas that surround the following islands: Cíes, Ons, Sálvora and Cortejada.

SPANISH MARINE PROTECTED AREAS/

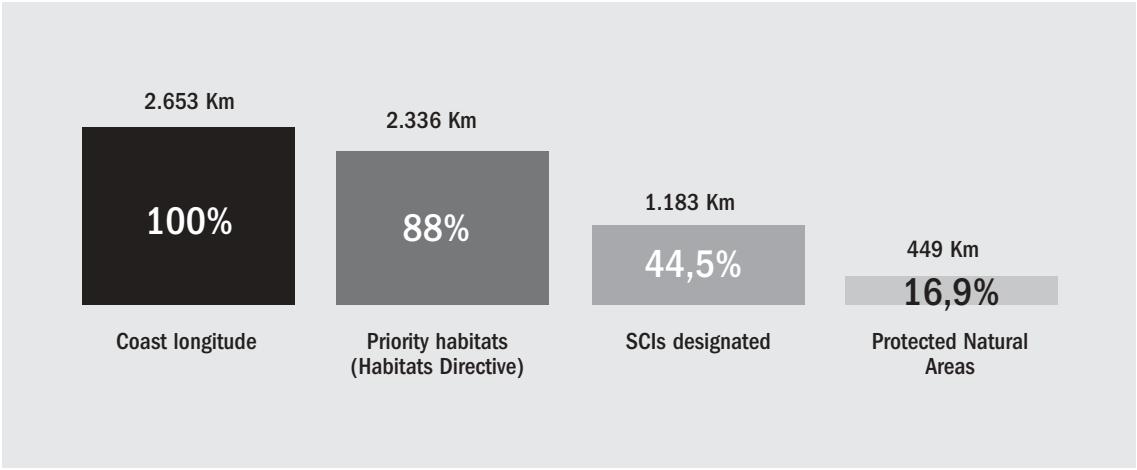


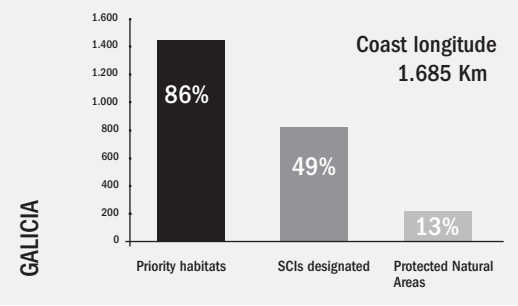


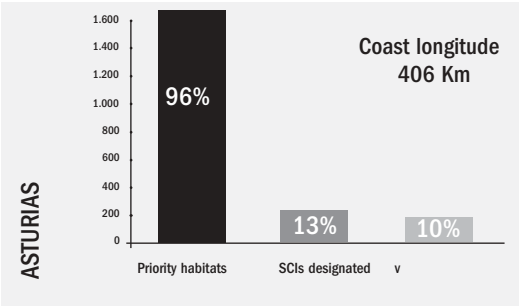
1 Illes Medes (Girona-Catalunya)
2 Cap de Creus (Girona-Catalunya)
3 Ses Negres (Girona-Catalunya)
4 Masía Balanca (Tarragona-Catalunya)
5 Bahía de Palma (Mallorca-Balearic Island)
6 Nord de Menorca (Balearic Island)
7 Migjorn de Mallorca (Balearic Island)
8 Freus d´Eivissa I Formentera (Balearic Island)
9 Llevant (Mallorca-Balearic Island)
10 Archipiélago de Cabrera (Balearic Island)
11 Islas Columbretes (Castellón-C. Valenciana)
12 Cabo de San Antonio (Alicante-C. Valenciana)
13 Isla de Tabarca (Alicante-C. Valenciana)
14 Cabo de Palos-Islas Hormigas (Murcia)
15 Cabo de Gata-Níjar (Almería-Andalucía)
16 Isla de Alborán (Andalucía)
17 Gaztelugatxe (Bizkaia-Basque Country)
18 Isla Graciosa e Islotes del Norte de Lanzarote (Canary Island)
19 Punta de la Restinga-Mar de las Calmas (El Hierro-Canary Island)
20 Isla de la Palma (Canary Island)
21 Islas Atlánticas (Galicia)

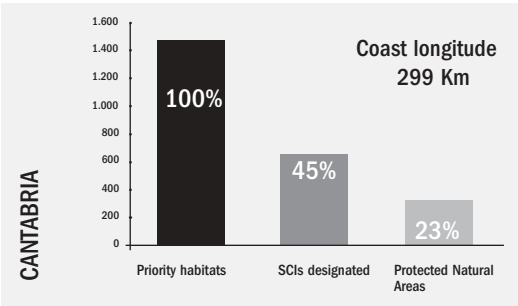
The vulnerability of the coastline affected by the *Prestige*

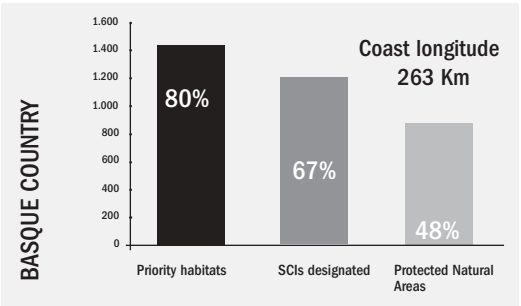
An analysis of the coast affected by the *Prestige* oil slick enables us to observe the vulnerability of this 2,653 kilometre-long coastal region. Of this stretch, 88% (2,336 km) constitutes priority habitats according to the Habitats Directive, of which 1,183 kilometres have been designated Sites of Community Importance (SCIs) but only 449 km have been declared to be Protected Natural Areas[41]. In other words, only 16.9% of the entire coast affected by the oil slick currently receives real protection.











[41]Data provided by Biosfera XXI, Estudios Ambientales, S.L.

Proposal for the protection of marine and coastal areas on the Galician Atlantic and Cantabrian coasts

Despite the essential role played by the marine environment in the ecological balance, neither the Spanish government nor the regional authorities have taken particular interest in protecting the marine environment. This situation is particularly clear in the case of the maritime-coastal region along the Cantabrian and Galician Atlantic coasts.

Greenpeace demands the creation of an effective network of protected areas along the Cantabrian and Galician Atlantic coastline. This protection would greatly speed up the recovery of the coastal ecosystems that have been affected along the 2,000 kilometre stretch of coast. This network must cover a considerable area in order to provide protection against new catastrophes and lay the foundations for a sustainable use of marine resources in the future, compatible with the recovery of those areas affected by the *Prestige*. A sustainable use that was far from being a reality before the oil-tanker accident occurred.

The protection of these areas is doubly important due to their ecological value and their usefulness in the recovery process

However, no governmental department has put forward any proposals in this respect, despite the European Union's specific request expressed in the report about reinforcing maritime safety after the sinking of the *Prestige* oil tanker, presented before the European Parliament in September[42].

The creation of new protected marine reserves will, without doubt, benefit the environment, economy and society. In such areas, the conservation strategies established must be based on an integrated management method which analyses all the uses, resources and services that are offered by the various habitats and geographical locations. In accordance with this information, the different areas must be divided into zones, for which the permitted intensity and nature of human use must be defined.

On the basis of these ideas, Greenpeace puts forward the following proposals for protection:

- **Estuaries and coastal wetlands:** All areas of this type must be protected and included within the European Natura 2000 network, as was recently demanded by the European Parliament[43]. In these areas, the use of destructive fishing methods (particularly different forms of dredging and trawling) which disturb the characteristic sedimentary habitat must be forbidden. Surrounding urban development must be limited and activities that affect the ecological balance must be prevented (pollution, eutrophication, alterations to water flow or sediments).

- **Islas Atlánticas National Park:** The number of areas included must be extended northwards, as was requested by several bodies at the time of its creation: Islas Sisargas, Islas Loberías and adjacent coastal areas, as well as other smaller islands and neighbouring areas of open coast.

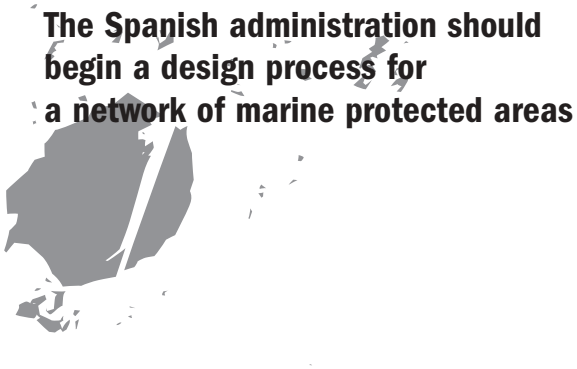
[42]Regional Policy, Transport and Tourism. Informe sobre el refuerzo de la seguridad marítima tras el naufragio del petrolero Prestige (2003/2066 (INI)). 15 July 2003.
[43]Regional Policy, Transport and Tourism Committee. Informe sobre el refuerzo de la seguridad marítima tras el naufragio del petrolero Prestige (2003/2066 (INI)). 15 July 2003.

- **Chain of exposed coastal areas along the entire coastline:** The exposed sea areas along the Galician and Cantabrian coast possess great biodiversity and are highly important as habitats for certain fishing resources (goose barnacles, mussel seeds and diverse fish species, for example). Many of the species that live in these habitats consist of restricted local populations and their reproductive success depends on their interrelation with other nearby populations. This type of ecosystem has been severely affected by the recent oil slick caused by the *Prestige*. What is more, the impact has been extensive.

These facts make it reasonable to suppose that the recovery of the affected populations will be slower than that observed in previous disasters of this type since, in this case, all the local populations have been destroyed along long stretches of the coast.

Thus, the administration should begin a design process for this network of protected areas. The process should be open to all users and interested parties, including fishermen and women, the scientific community and society in general. The involvement of fishermen and women is of vital importance since decades of centralised fisheries management have clearly shown that if fishermen and -women are not involved in the decisions that affect the management of natural resources, it is very difficult to ensure that they are carried out effectively.

The Spanish administration should begin a design process for a network of marine protected areas



Noah's Arks to recover the coast affected by the *Prestige*[44]

Among the studies carried out in the area affected by the *Prestige* disaster, there exists a coastal protection proposal prepared by the Department of Ecology and Animal Biology of the University of Vigo which suggests the creation of a network of special-interest areas called "Noah's Arks" along the entire Galician coast.

The aim of this network is to protect a group of valuable areas that have been affected by the impact of the oil spill. These areas have been chosen on the basis of their ecological value as well as technical criteria such as accessibility and closeness to pollution-fighting infrastructures. The objective of the establishment of a network of protected marine reserves is twofold:

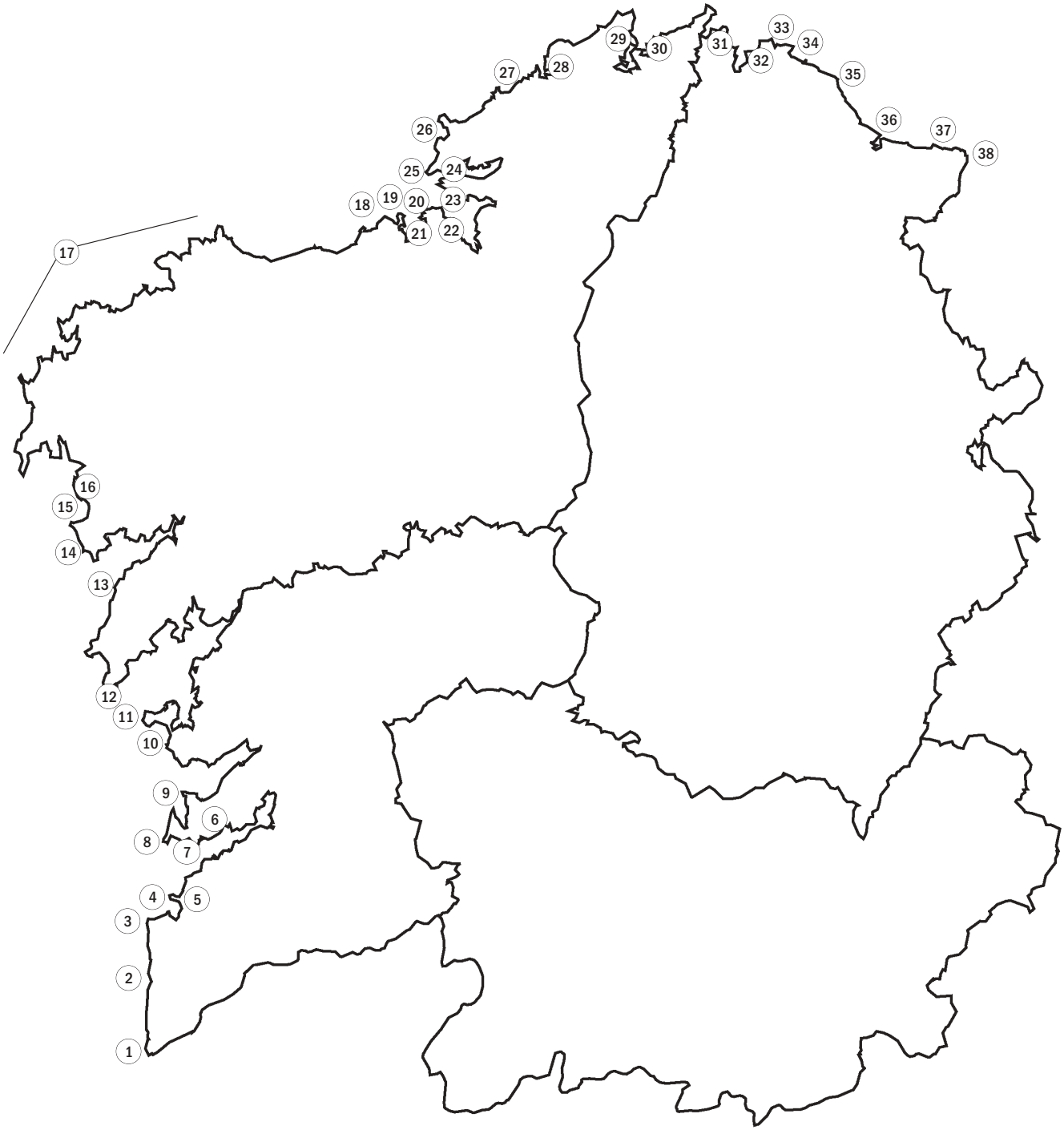
- to guarantee the reproduction of organisms that have survived the oil slick.
- to repopulate the areas damaged by fuel, once they have been cleaned.

[44]Proposal for coastal protection: "Arcas de Noe". Dr. Elsa Vázquez Otero and Dr. Jesús Souza Troncoso. Department of Ecology and Animal Biology, University of Vigo

THE PROPOSAL PUT FORWARD IN THIS SCIENTIFIC STUDY IS AS FOLLOWS/

From A Guarda to Cabo Silleiro	
Punta dos Picos (A Guarda)	1
Rocks surrounding Santa María de Oia	2
Cabo Silleiro	3
Vigo Ria	
Rocky area to the left of Playa América	4
Rocks between Monteferro and the left side of Patos beach	5
Punta Sobreira	6
Punta Borneira	7
Punta Robaleira & Cabo Home	8
Pontevedra Ria	
Cabo Udra	9
Punta Fagilda in Sanxenxo	10
Arousa Ria	
Punta Aguieira on the O Grove peninsula	11
Punta Centolleiro in Aguiño	12
Muros & Noia Ria	
Castro de Baroña	13
Punta Insua in Lira	14
From Monte Louro to Caión	
Punta de Caldebarcos	15
Punta Carballino to the south of O Pindo	16
Rocks between Fisterra & Caión	17
Golfo Ártabro	
Punta Langosteira in Arteixo	18
Islas de San Pedro in A Coruña	19
Punta Herminia in A Coruña	20
Punta Bufadoiro in Mera	21
Punta Corbal (Lorbé) on the left side of the Ares-Betanzos Ria	22
Islas Mirandas in Ares-Betanzos Ria	23
Punta do Segaño in Ferrol Ria	24
Cariño in Ferrol Ria	25
Punta del Castro opposite Illas Gabeiras	26
From Cabo Prior to Estaca de Bares	
Rocks to the right of Valdoviño	27
Rocks on the outer side of Cedeira harbour	28
Punta do Castro on the outer side of Cariño harbour	29
Punta dos Prados on the outer side of Espasante harbour	30
Illa Coelleira in Estaca de Bares	31
Lugo Coast	
Punta Padiñas in Viveiro Ria	32
Punta Roncadoira in Portocelo	33
Punta de Morás in San Ciprián	34
Between Cabo Burela and Playa de Marosa (right side)	35
Punta do Cabo in Foz	36
Rocky outcrop in Rinlo	37
Ribadeo Lighthouse	38

This proposal, drawn up by scientists, could be the starting point for a much larger network which would cover the whole of the affected coastline.



Solutions aimed at preventing new catastrophes

The recovery of coastal and marine areas affected by the oil slick caused by the *Prestige* will not be sufficient if governments and the International Maritime Organisation, responsible for the safety of maritime traffic throughout the world, do not strengthen the regulations to prevent oil slicks. These regulations should also ensure that those which cause spills do not escape financial responsibility. Together with the reinforcement of maritime safety, the Spanish government must work to provide the measures and plans that are necessary in order to fight oil slicks efficiently. The shortcomings that were witnessed during the *Prestige* accident made this very clear.

The fight against pollution from the land must be another objective. Besides large and spectacular oil slicks, coastal waters receive vast amounts of pollution every day in the form of industrial and urban sewage and dumping of all kinds, which relentlessly deteriorate the quality of the marine environment.

Measures to improve the safety of maritime traffic

The recent report that was presented in the European Parliament about the reinforcement of maritime safety following the sinking of the *Prestige* oil tanker considers it necessary to prepare specific emergency plans in areas of heavy maritime traffic[45]. Similarly, it asks for protection, prevention and surveillance programmes to be implemented for maritime transport routes in those areas which are most vulnerable and are exposed to the risk of chemical and oil accidents. The report asks the Commission and the European Council to present a co-ordinated proposal to the International Maritime Organisation for the declaration of sensitive maritime routes along the coasts of the European Union which contemplates the need to establish a "zero" level of polluting discharges, as well as a ban on the transportation of dangerous products.

The member states of the European Union must take their role in the International Maritime Organisation seriously. The European Union is an observer at the IMO, it is the states that are full members, hence an initial move should be that the EU itself gains full member status. The EU and its member States need to argue the case for stronger measures within the IMO. The toughening of measures in European waters alone will only serve to move the current fleet of 'rustbuckets' towards countries in the South.

Until now, the demands made by the European Union have not been take into account by the International Maritime Organisation, which has made no progress on issues relating to maritime safety despite the fact that a year has passed since the *Prestige* catastrophe

[45]Regional Policy, Transport and Toursim Committee. Informe sobre el refuerzo de la seguridad marítima tras el naufragio del petrolero Prestige (2003/2066 (INI)). 15 July 2003.

One of the first aspects that the IMO should modify is the regime of responsibility that arises from an accident. The current compensation system is based on the limited financial responsibility of the owner of the vessel, according to the tonnage of the ship. In the case of the sinking of the Erika oil tanker off the French coast three years ago, responsibility was limited to 13.5 million euros, despite the fact that the damage accumulated as a result of the oil slick totalled almost 1,000 million euros. What is more, under the current system, this responsibility is restricted exclusively to the shipowner whilst the managers, charterers, operators and owners of the load (which, in the case of oil slicks, are usually large multinational oil companies) are entirely exempt of all responsibility.

Greenpeace has demanded a change in the system, in order that responsibility be extended to the entire transport chain, including the owners of the cargo

Following the case of the Exxon Valdez (property of Exxon) and the Erika (property of the company TotalFina), in which the affected countries demanded that the oil companies accepted their responsibility for the oil slick caused, the reaction of these companies did not lead to an increase in safety but instead quite the opposite. The large oil companies have gradually reduced their safety measures in order to evade their responsibilities. Over the last decade, they have done away with a large part of their crude oil transportation fleet and have chosen to transport their hazardous products in cheap vessels hired from intermediary companies. Thus, in the event of an accident, responsibility is dispersed. There is no better example than that of the *Prestige*, in which the cargo-owning company, the Swiss firm Crown Resources, legally vanished after the accident.

Greenpeace has demanded a change in the system, in order that responsibility be extended to the entire transport chain, including the owners of the cargo. This would mean that the use of 'rustbuckets' for the transportation of products would no longer be lucrative. However, one year after the accident involving the *Prestige* oil tanker, the International Maritime Organisation has taken no steps to change the current regime of responsibility and continues to allow hundreds of "profitable" time bombs to sail the oceans and seas of the entire world.

Another of the issues often related to oil slicks is the so-called flags of convenience. The *Prestige* was registered in the Bahamas, one of the nations which awards flags without any concern for the fulfilment of international regulations, including those referring to maritime transport safety. Flags of convenience are a common factor in a large number of shipping accidents in that they provide a loophole through which disreputable shipping companies and owners can avoid their responsibilities. Despite this, the International Maritime Organisation has not introduced any changes in the regulations to prevent their use or sanction those countries that violate the legislation with absolute impunity.

Lastly, another common factor in many oil slicks are single-hulled tankers, which provide much lower levels of safety than those equipped with a doublehull. The hiring of these vessels for the transportation of all kinds of products is very common since they are, generally, cheaper. The reality of the situation shows that they are more likely to suffer accidents. The International Maritime Organisation has done nothing to prevent these ships from transporting hazardous substances all around the world.

However, in the absence o any moves by the IMO, the European Union has taken action, albeit limited, in this area. It has modified the regulations in order to ban the entry of single-hull tankers in European ports from 20th October onwards. Despite being important, this measure is insufficient since it does not

IMO: ACT NOW!

It is clear that a range of measures needs to be implemented urgently which would increase the quality of shipping. These include:

- **A liability regime which can both act as an incentive to use high quality ships and crews and which is more consistent with the polluter pays principle. This means that the charterers (i.e. the oil companies in the case of tankers) should not be excluded from liability as is currently the situation.**
- **The rapid phase out of single-hulled tankers worldwide.**
- **The establishment of Particularly Sensitive Sea Areas (PSSAs) for the most vulnerable coastlines.**
- **A more robust and transparent inspection and maintenance regime including the publication of classification society survey results.**
- **Closure of loopholes such as the use of Flags of Convenience whereby shipowners can avoid their responsibilities by flagging a vessel with a county in which the standards are lowest.**

prevent ships like the *Prestige* from sailing through European waters (it only forbids them to dock in its ports) and nor is it useful in fighting oil slicks such as that caused by the Exxon Valdez, a double-hulled oil tanker, in Alaska. The EU has also proposed certain Marine Protected Areas. While neither of these measures go far enough, they are at least more than has been taken by the IMO.

The European Union must do more to prevent safety policies from being determined by the oil companies. The regulations decreed by the EU are reduced to promises and a selective toughening of the rules, clearly adapted to certain commercial interests which do not give as much importance to protecting the marine and coastal environment.

Although governments and industry should fully comply with the polluter pays principle, the reality is that the financial liability paid by commercial interests is absurdly low. The real cost is borne by the citizens and the environment on which they and their livelihoods depend. In this context, it becomes clear that the interest in investing to improve ship safety is minimal.

Safety measures to fight pollution and catastrophes

Despite having suffered successive incidents of serious pollution on our coasts as the result of shipping accidents, Spain still has no resources or contingency planning to lessen the effects of a catastrophe of this type. Despite the opinions expressed by the government stating the opposite, prevention is fundamental. We cannot continue to believe that oil slicks are inevitable, something we have heard from the lips of more than one official, and that little more can be done than to trust that the wind will take the spilt cargo far away.

Ignorance of the natural processes that take place in different parts of the world may lead one to believe that nature is unpredictable. However, the true situation demonstrates that an ever more exhaustive understanding of these processes allows their evolution to be fully explained and, to a certain degree, allows natural phenomena to be predicted[46].

The Ministry of Public Works is responsible for applying and implementing the Contingency Plan to fight sea pollution, required by both the Law on Ports and the Merchant Navy and the MARPOL Convention, in order to control ships and their spillages. Despite this legal mandate for the creation and implementation of contingency plans which would make it possible to fight accidental sea pollution in all the maritime areas of the coastal regions of Spain, not a single plan is currently operative in Spain. The basic regulations for their creation were not even developed until the year 2001[47].

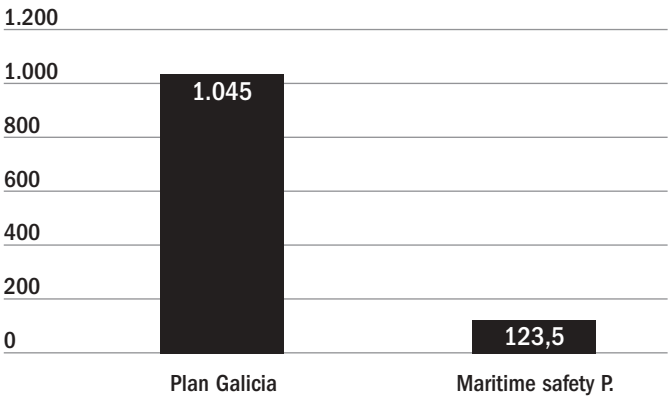
The Galician Autonomous Government was planning to approve a Decree with a Basic Contingency Plan for Sea Pollution at the start of September, to guarantee the co-ordination between competent bodies during pollution incidents and predict the resources and services necessary in the event of another oil slick. However, this has not yet come into being.

Spain lacks the tugs and anti-pollution barriers necessary to deal with oil slicks. Despite this, the Ministry of Public Works has assigned thousands of millions of euros to the Infrastructures Plan, many of which have been given by the European Union, to continue financing the transformation of the natural environment via the construction of ports, airports, dual carriageways and motorways.

In October 2003, the Ministry of Public Works announced that in 2004 it would spend 123.5 million euros on a programme for maritime traffic safety and coastal surveillance in Galicia[48]. This figure sharply contrasts with the 1,045 million euros that it will invest in infrastructures in this region, as part of the so-called "Plan Galicia"[49].

In the report about the *Prestige* prepared by the European Parliament, a request is made for the Commission to include the establishment of Urgent Intervention Plans for all European coastal

SPANISH GOVERNMENT INVESTMENT FOR 2004
(MILLIONS OF EUROS)/



Source/ *General National Budget 2004*

[46]El Impacto del Prestige. Análisis y Evaluación de los daños causados por el accidente del Prestige y dispositivos para la regeneración medioambiental y recuperación económica de Galicia. Galician Economic Studies Institute, Pedro Barrié de la Maza.
[47]El libro blanco del Prestige. Fundación Alternativas. 2003.
[48]Note 299 of the Ministry of Public Works. La Seguridad Marítima en los PGE-2004. http://www.xunta.es
[49]"El Gobierno presupuesta más de mil millones para arrancar el Plan Galicia" (The government budgets over one thousand million to start the Plan Galicia). La Voz de Galicia. 8/10/03.

areas within the agenda of the VI Research and Technological Development Framework Programme for the year 2004. These plans would make it possible to face all kinds of risks and catastrophes, as well as the design and construction of new ships technologically developed for collecting and cleaning toxic sea spills and the promotion of new technologies for environmental recovery and the treatment of waste.

However, the Spanish administration cannot sit back and wait for the European Union to come and solve the problems that occur on our coasts. The Spanish government must promote the development of European actions whilst at the same time taking immediate measures to protect the coast, since this is exclusively and solely their responsibility.

It is therefore necessary to establish protocols for action in the event of different types of accidents in the various maritime regions of Spain. Equally, refuge or shelter areas must be created which are specially equipped to harbour damaged ships, with the aim of spatially limiting the effects of the accident.

One of the projects envisaged in the Plan Galicia is the construction of a new exterior port in A Coruña which some officials have attempted to justify as a "port of refuge".
It is clear that an exterior port is completely unsuited to the function of a shelter area and that a port of refuge must be exclusively devoted to this task and is therefore incompatible with the activities of a commercial port.

Another necessary measure is the redefinition of powers regarding the protection and conservation of the maritime-coastal environment in order to guarantee an immediate and co-ordinated response and efficient management which would give priority to safeguarding the environment, over and above commercial or corporate interests.

Both ports and oil companies must be obliged to have sufficient anti-pollution resources in order to deal with the pollution caused by the substances that are being transported, loaded or unloaded, in the event of an accident.

The state must also invest in anti-pollution resources:

- Anti-pollution ships with the capacity to absorb and store polluting substances, permanently located in areas of greatest maritime traffic: Bay of Biscay, Galicia, Andalusia, the Mediterranean and the Canary Islands.
- Anti-pollution barriers to fight serious cases of pollution in the worst possible sea and weather conditions, also distributed throughout the various maritime areas, with the resources necessary for their installation.

The current increase in general-purpose ports, apart from the 43 existing ports, which compete amongst themselves to attract new maritime traffic in order to survive, does nothing but increase the risks, to the detriment of our threatened coastline.

"Princess Eva" versus "*Prestige*"/

In January 2003, "Princess Eva", loaded with 55,000 tonnes of crude oil entered Donegal Bay in Ireland, with cracks on the deck as the result of a violent storm. Ireland took the decision to keep the boat in the bay, accepting the risk that an oil spill could occur. Once inside the bay, the Marine Safety Directorate, together with the Irish Coast Guard and the Marine Survey Office demanded that the shipping operator transfer the cargo to another ship and provisionally repair the "Princess Eva" in Ireland. The ship left Ireland a few months later, with the cracks on the deck welded and her tanks empty.

In November 2002, the "*Prestige*", loaded with 77,000 tonnes of heavy fuel oil, sent out an SOS at a distance of 28 miles from Finisterre, in Spain. A crack on its starboard side meant that it was losing some of its cargo. Spain took the decision to send the "*Prestige*" far from its coast, out to sea, when the boat was already losing oil and had been seriously damaged by the sea's actions. What happened was inevitable: the boat split in two and sank. The rest of the story is well-known.

The elimination of threats in the coastal region

The *Prestige* disaster has aggravated the poor situation of the marine and coastal environment along the affected coast. However, it is not the only cause of this deterioration. The destruction of habitats, pollution and the effects of climate change are the most obvious results of a series of activities that have been identified for some time now: overfishing, oil and gas prospecting, maritime transport, the accumulation and transportation of hazardous substances, waste dumping, excessive port infrastructures and sand and gravel extraction.

The spills which originate from ships, accidental or otherwise, are not the only source of pollution for the maritime-coastal environment. They represent 25% of the pollution that reaches the coast and sea. The rest comes from the land.

The lack of knowledge about marine and coastal ecosystems and the benefits that can be obtained by preserving them in good condition is reflected in the inconceivable, arbitrary and thoughtless decisions that are taken regarding the location of industries, landfills, exterior ports, etc, which alter marine hydrodynamics, destroy animal and plant communities and pour all kinds of waste into the sea, promising to convert certain coastal areas into sewers.

The control of pollution from the land and from ports located along the length of the coast must become a reality as soon as possible, in order to completely prevent all waste materials from entering the sea.

The *Prestige* disaster has aggravated the poor situation of the marine and coastal environment along the affected coast

Hydrocarbon research licences in the bay of biscay, opposite the Asturian coast/

On 24th October of this year, the cabinet ministers approved a Royal Decree by which five research licences were awarded to the company Repsol Investigaciones Petrolíferas, S.A. giving it the exclusive right to search for hydrocarbons during a period of six years in an area of 478,863 hectares located opposite the Asturian coast.

Drilling activities and the future installation of oil platforms will in no way contribute to improving the coast affected by the *Prestige* oil slick. However, this does not seem to matter to the Spanish government, which allows a dangerous activity to be carried out along the damaged coastline without even having presented a recovery plan for the area. Instead of eliminating existing threats, they are adding greater uncertainty to the coast's future.