CENTRO PARA LA PREVENCION Y LUCHA CONTRA LA CONTAMINACION MARITIMA Y DEL LITORAL

OSCE

Organization for Security and Co-operation in Europe

TURKMENISTAN

ACTIONS TAKEN FACING A MAJOR MARITIME AND COASTAL OIL SPILL INCIDENT

THE PRESTIGE INCIDENT

TURKMENBHASY – MARCH 10th – 11th, 2008

Capt. Jorge Zaragozá

CENTRO PARA LA PREVENCION Y LUCHA CONTRA LA CONTAMINACION MARITIMA Y DEL LITORAL

TECHNICAL WORKSHOP ON OIL SPILL REMEDIATION

TURKMENBHASY

RESPONSE AND REMEDIATION OF THE "PRESTIGE" (LESSONS LEARNED)

THE PRESTIGE INCIDENT

TURKMENBHASY – MARCH 10th – 11th, 2008

Capt. Jorge Zaragozá

CENTRO PARA LA PREVENCION Y LUCHA CONTRA LA CONTAMINACION MARITIMA Y DEL LITORAL

- The geographical situation of Spain related to the main oil trade maritime routes.
- Overview of the most relevant oil pollution incidents occurred in Spain.
- The Prestige incident.

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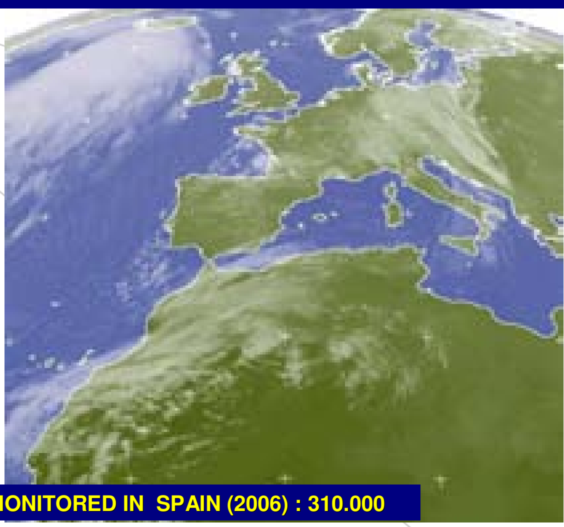
The geographical situation of Spain related to the main seaborne oil trade routes



NR OF VESSELS MONITORED IN SPAIN (2006) : 310.000

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The geographical situation of Spain in relation with the maritime routes

NR OF VESSELS MONITORED IN SPAIN (2006) : 310.000

Number of ships: 537

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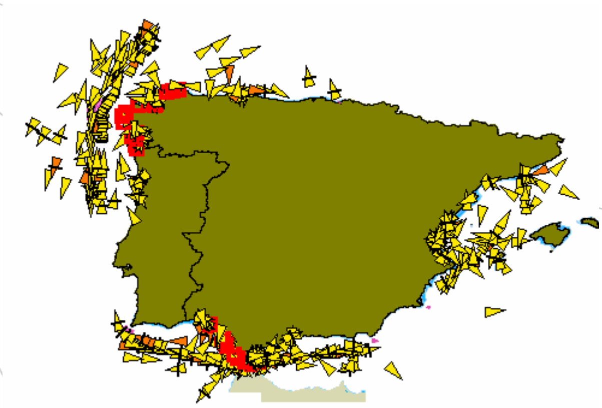
The geographical situation of Spain in relation with the maritime routes



Number of vessels crossing: 571

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The geographical situation of Spain in relation with the maritime routes

Number of vessels crossing Gibraltar Strait :163

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The geographical situation of Spain in relation with the maritime routes

Number of vessels around Algeciras Bay :83

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The Seaborne Crude Oil Trade

The geographical situation of Spain in relation with the maritime routes

Actually (2006): 2.600 millions tons are carried in the Seaborne Crude Oil Trade

Aproximately 1/3 of the Crude Oil seaborne trade cross through Spain coast line

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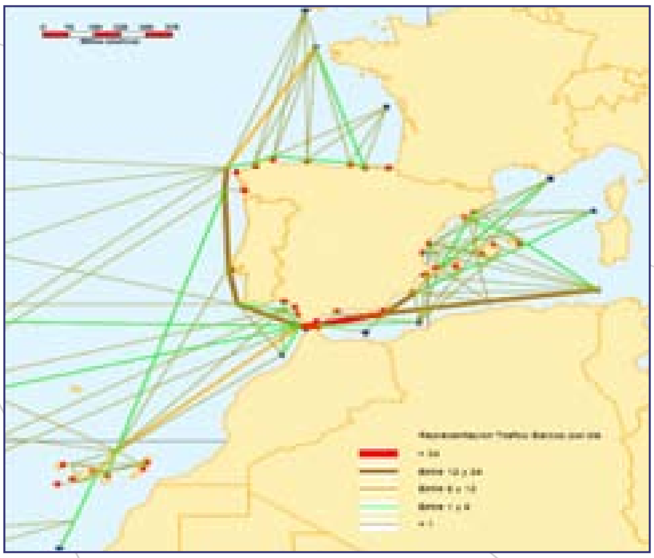
Bulk liquid tankers routes around Spain



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Overview of the most relevant oil pollution incidents occurred in Spain.

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Overview of the most relevant oil pollution incidents occurred in high seas and off Spain.

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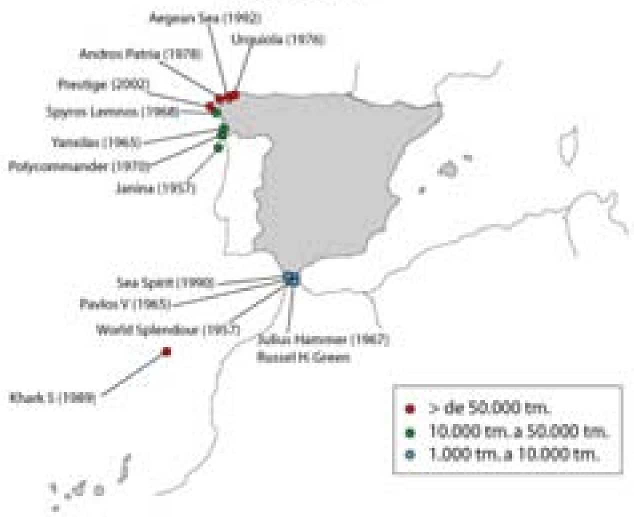
Most relevant oil pollution incidents occurred in territorial waters of Spain

(> de 1.000 tm.)



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Relevant oil pollution incidents occurred off Spain

VESSEL	SPILLED OIL (TONS)	DATE	PLACE	COUNTRY	PRODUCT	VESSEL TYPE	FLAG	YEAR BUILT	CAUSE
Urquiola	77.000	12-may-76	Coruña	España	light arabian crude oil, bunker fuel	oil tanker	España	1973	grounded
Aegean Sea	76.000	03-dic-92	Coruña	España	oil	oil tanker	Grecia	1973	grounded
Khark 5	63.400	19/12/1989	Off Canary I.	España	Iranian heavy crude	oil tanker	Irán	1975	Strong gale 11
Prestige	63.000	13-nov-02	Galicia	España	fuel oil	oil tanker	Bahamas	1976	Hull Structural Failure
Andros Patria	50.000	31-dic-78	Coruña	España	crude oil	oil tanker	Grecia	1970	Hull Structural Failure
Sea Spirit	6.845	06-ago-90	Gibraltar	Marruecos	heavy fuel oil	oil tanker	Chipre	nd	collision
Pavlos V	1.500	jun-65	Gibraltar	España	fuel	nd	Rusia	nd	collision
RusselH.Green/ JuliusHammer	1.500	10-jun-67	Gibraltar	España	fuel	nd	nd	nd	collision
World Splendour	1000	20-ago-57	Gibraltar	España	fuel	nd	nd	nd	nd
Yanxilas	16.000	1965	Vigo	España	oil	oil tanker	Grecia	n.d.	nd
Polycommander	15.000	04-may-70	Vigo	España	crude oil	oil tanker	Noruega	1975	grounded
Spyros Lemnos	15.000	08-nov-68	Finisterre	España	crude oil	oil tanker	Liberia	1953	n.d.
Golar Patricia	10.000	05-nov-73	Off Canary I.	España	oil	oil tanker	Liberia	1969	explosión
Janina	10.000	18-ene-57	Vigo	Portugal	fuel	oil tanker	Francia	1948	Fire

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1970

VIGO estuary

OIL TANKER "POLYCOMMANDER"

15.000 MTONS

OF OIL

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1976

A CORUÑA

OIL TANKER "URQUIOLA"

77.000 MTONS

OF CRUDE OIL

CENTRO PARA LA PREVENCION Y LUCHA CONTRA LA CONTAMINACION MARITIMA Y DEL LITORAL

1976

A CORUÑA

OIL TANKER "URQUIOLA"

77.000 MTONS

OF CRUDE OIL

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1992

OFF LA CORUÑA

OBO "AEGEAN SEA"

76.000 MTONS

OF CRUDE OIL

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NOVEMBER 2002

THE PRESTIGE INCIDENT

CENTRO PARA LA PREVENCION Y LUCHA CONTRA LA CONTAMINACION MARITIMA Y DEL LITORAL

The Prestige

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THE ACCIDENT

On November 13th, 2002 the single hull oil tanker "Prestige" , loaded with 76.972 tons of heavy fuel oil, suffered a structural hull failure off the coast of Galicia, Spain

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THE ACCIDENT

Hull structural failure

Fleet activated

- 5 tugs (123 t, 93 t, 55 t, 50 t, 50 t)
- 4 helicopters.

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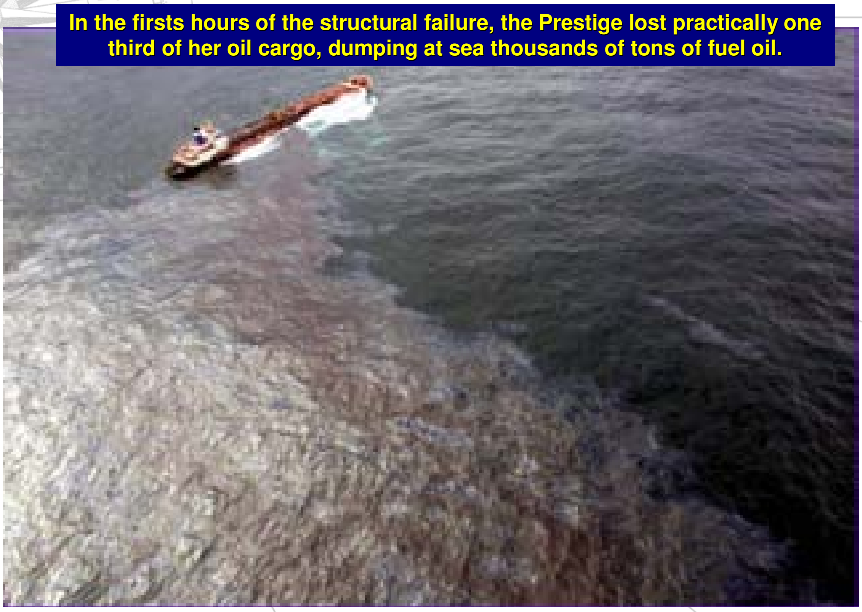
THE ACCIDENT

In the firsts hours of the structural failure, the Prestige lost practically one third of her oil cargo, dumping at sea thousands of tons of fuel oil.



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THE ACCIDENT

On November 19th,2002, the vessel broke in two parts and sunk at 133 miles at west-south west of Cape Finisterre

13.089 tons of HFO remaining in the Hull-Fore part

711 tons of HFO remaining in the Hull-Aft part

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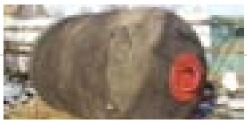

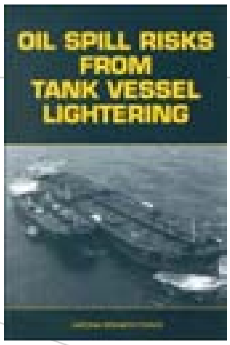

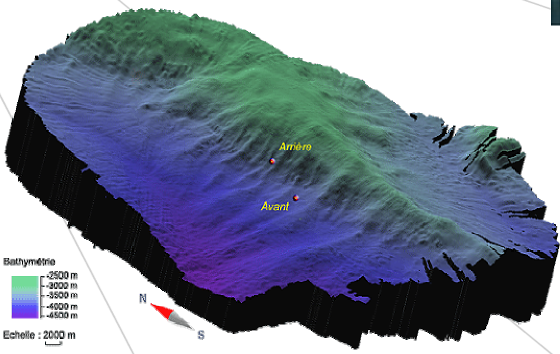

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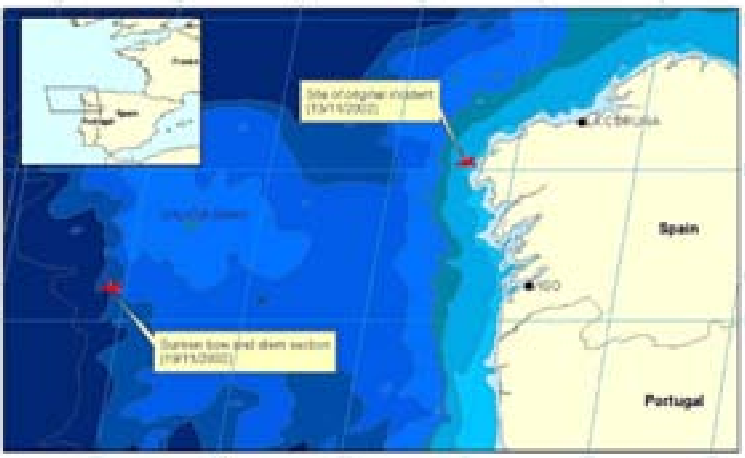

Prestige - Vessel location

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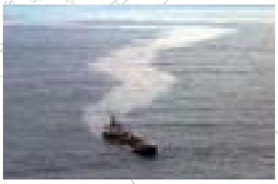
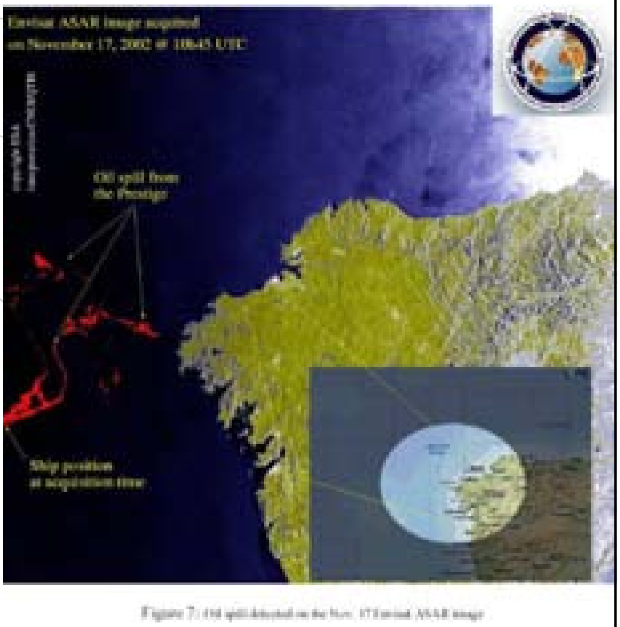
Satellite view of the oil spill





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The red line shows the coastline affected by the oil spilled by the Prestige (Spain, France and the United Kingdom)

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The consequences

Most of Galicia coast affected

Fishing forbidden: 555 Km.

Shellfishing forbidden: 307 Km.

On September 2003 all fishing activities were fully recovered

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Main issues addressed during the Prestige incident management

- Combating oil pollution at sea: main figures and lessons learnt.
- On shore cleaning and restoration: main figures and overview of the specific procedures development.
- Prestige wreck: overview of the operations leading to recover 14000 tons of oil sunk at 4000 meters deep.
- Compensation claims management.

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CLEAN-UP AT SEA

- 14 vessels from, among other countries, Spain, Belgium,France, Italy, Germany, the Netherlands, the United Kingdom, Portugal, Denmark and Norway.
- 30 aircraft (helicopters and aeroplanes).
- More than 1,000 small fishing boats.

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FIGHTING AT SEA






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Combating oil pollution at sea

Analysis of Vessel Oil Recovery Performance

VESSELS	On Site Arrival (Days after incident)	Recovery Period (Days)	Sweeping Arms	Vessel Storage Capacity (m3)	Recovered Oil/Water Emulsion (m3)	Oil/Water Recovery Rate (m3/ Day)
RIJNDELTA	6	~24	=	3.548	7.032	285,7
ARCA	10	~31	=	1.060	5.498	174,5
NEUWERK	9	~27	=	1.000	1.600	58
FAR SCOUT/ BOA SIW*17	17	42		1.000	1.228	29,2
GUNNAR SEIDENFADEN	21	~38		310	500	13
NORMAN DRAUPNE BAMSE	40	~25		798	285	11,2
UNION BEAVER	13	19		300	102	5,4
BRITISH SHIELD &SEFTON SUPPORTER	20	~31		3.835	99	3,1
AQUA CHIARA	22	38		1.084	48	1,3
TITO	22	38		290	48	1,3
AILETTE	3	45		500	600	?
ALCYON	15	44		500	150	?
FISHING BOATS					36.643	

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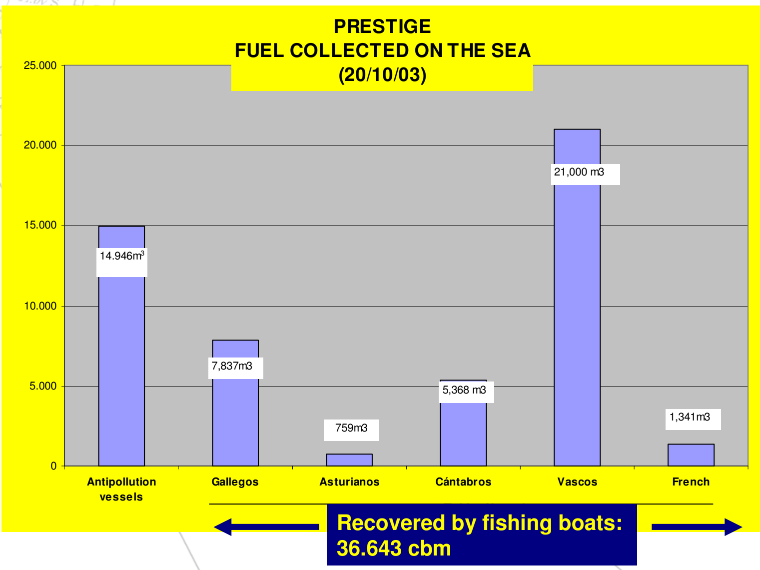

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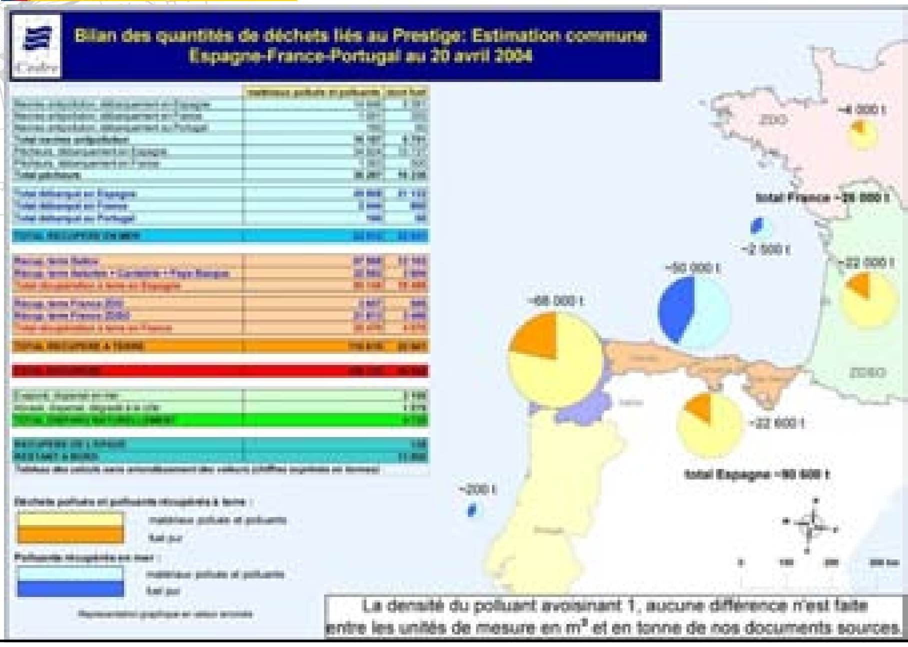

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Oil debris recovered in mtons

OIL DEBRIS COLLECTED				
		ASHORE(1)	SEA (2)	OTHER
Spain	Galicia (3)	68250	10 773 *	
	Asturias (3)	5174	694 *	
	Cantabria (3)	13068	4 180 *	
	Pais Vasco (3)	4116	20 996 *	
	anti-pollution vessesls		14946	
	SASEMAR units		39	
	tottal	90608		
France (4)		25470	1350	
Portugal (5)			160	
Tottal		116078	53138	

(1) mix of sand and fuel
(2) emulsion of water and fuel
(3) data provided by each Autonomic Communities
(4) data porvided by CEDRE
(5) data provided by the Portuguese Government
(*) fuel recovered by fishing vessels

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ON SHORE CLEANING AND ENVIRONMENT RESTORATION

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On shore cleaning and restoration: main figures

Spain set up the biggest operative to fight against pollution ever activated

The daily participation of:

- 14 vessels from, among other countries, Spain, Belgium, France, Italy, Germany, the Netherlands, the United Kingdom, Portugal, Denmark and Norway.
- 25 aircraft (helicopters and aeroplanes).
- More than 1,000 small fishing boats.
- About 4,400 people taking part in clean-up operations

The mobilization of:

- 900 vehicles
- 25,000 rubbish containers.
- More than 64 KM of pollution booms.
- More than 734,000 full personal clean-up suits for volunteers, soldiers and contracted workers.

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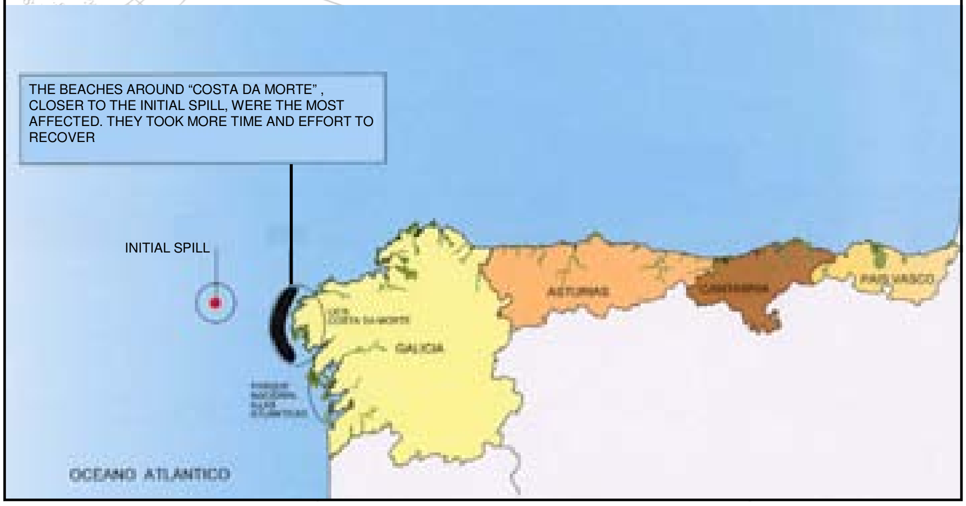
ON SHORE CLEANING

Number of beaches affected in Spain: 786

Number of beaches affected in Galicia: 505



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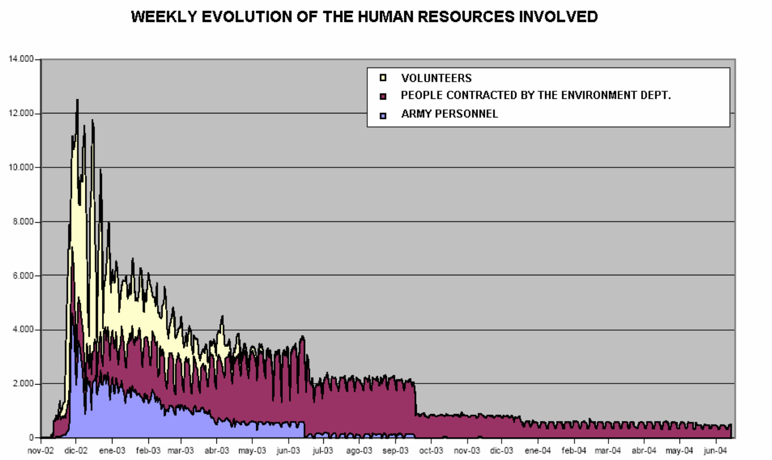
ON SHORE CLEANING

People involved in cleanup operations ashore



Up to 12.000 people working simultaneously

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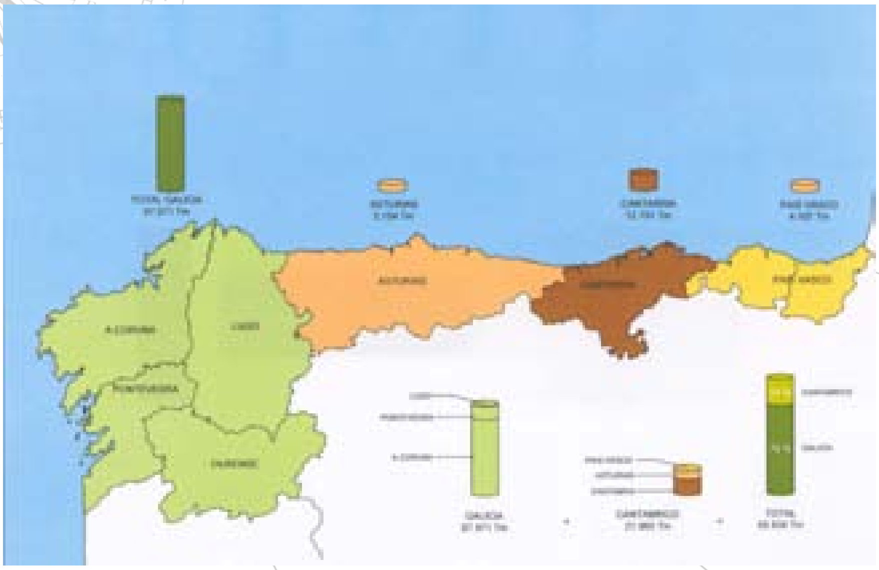
ON SHORE CLEANING

Waste recovered ashore – 90.608 metric tons



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A great social response from fishermen and volunteers

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With advice from local and international specialists in oil spill disasters due to hidrocarbon spills: LE CEDRE, NOAA, ITOPF.

ACTION PLAN

STAGE 1: General clean-up of the coastline

↓

STAGE 2: Specialised clean-up of beaches, rocky areas and particularly sensitive areas

↓

STAGE 3: Rehabilitation and regeneration of the environment along the affected coastline

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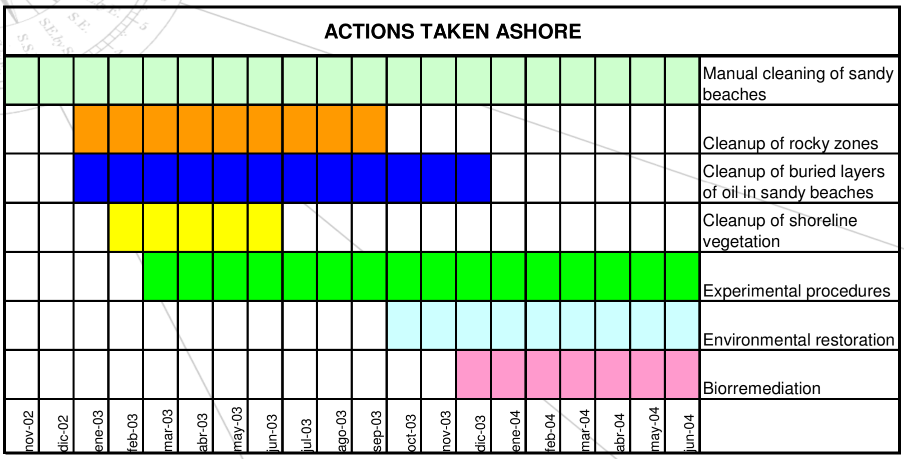
ON SHORE CLEANING



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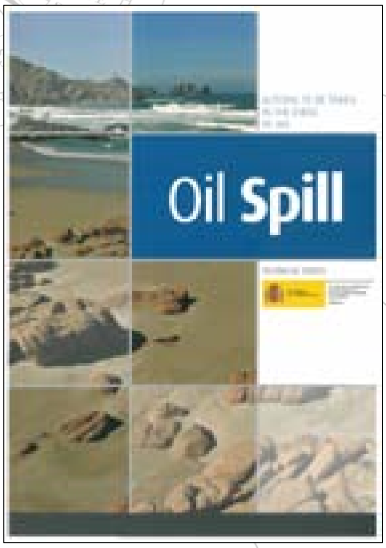
CEPRECO - ON SHORE CLEANING MANUALS



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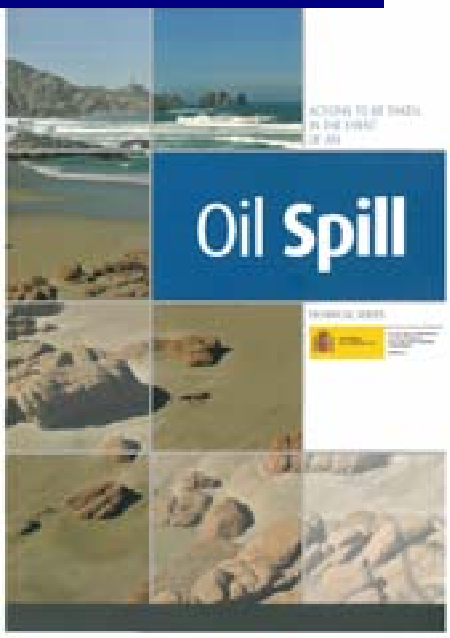
ON SHORE CLEANING

1. Recommendations for manually cleaning of sandy beaches
2. Procedure for detection, analysis and diagnosis of fuel-oil in beach sand
3. Procedure for cleanup of rocky areas and infrastructures by washing by pressurized water jets
4. Procedure for cleanup operations of beaches with buried layers of oil
5. Procedure for cleanup operations on impacted shoreline vegetation and in areas of secondary pollution
6. Procedures for cleaning of pebble and cobble beaches
7. Procedure for action using bioremediation techniques in rocky environments impregnated with oil
8. Recommendations for collecting and transporting oiled birds



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ON SHORE CLEANING

1.- Recommendations for manually cleaning of sandy beaches

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ON SHORE CLEANING

2.- Procedure for detection, analysis and diagnosis of fuel-oil in a sand beach

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ON SHORE CLEANING

3.- Procedure for cleanup of rocky areas and infrastructures by washing by pressurized water jets

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ON SHORE CLEANING

4.- Procedure for cleanup operations of beaches with buried layers of oil

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ON SHORE CLEANING

5.- Procedure for cleanup operations on impacted shoreline vegetation and in areas of secondary pollution

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ON SHORE CLEANING

6.- Procedures for cleaning of pebble and cobble beaches

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ON SHORE CLEANING

7.- Procedure for action using bioremediation techniques in rocky environments impregnated with oil

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ON SHORE CLEANING

8.- Recommendations for collecting and transporting oiled birds

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PRESTIGE WRECK

Prestige wreck: overview of the operation leading to recover 14000 tons of oil sunk at 4000 meters deep

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PRESTIGE WRECK

Four main inspection campaigns to the wreck have been carried out

1. End 2002 - Mid 2003 – leaks fix
2. Summer 2003 – Extraction trials
3. Summer 2004 – Extraction operations
4. Summer 2007 – Inspection

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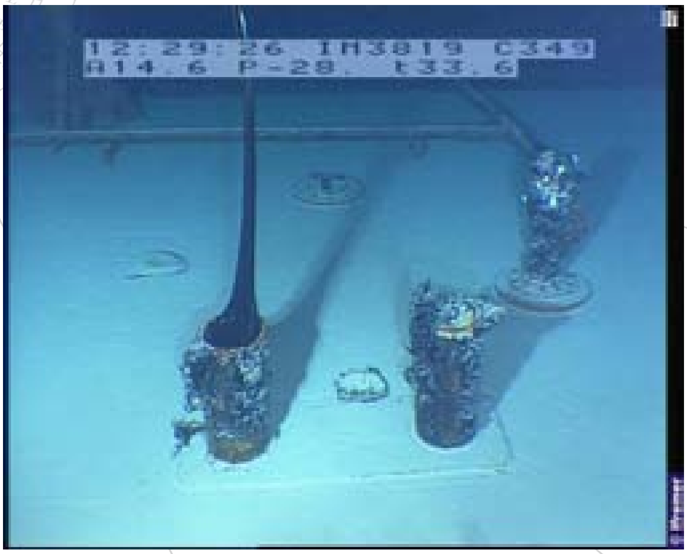
PRESTIGE WRECK - 2003

Early 2003 leaks flowing



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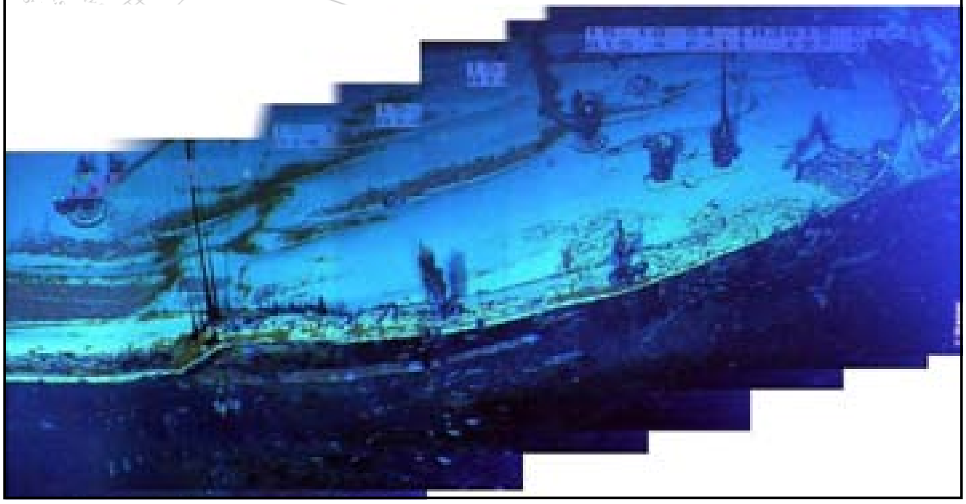
PRESTIGE WRECK - 2003

Early 2003 leaks flowing



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PRESTIGE WRECK - 2003

Early 2003 operations – the “Nautile” submarine, IFREMER

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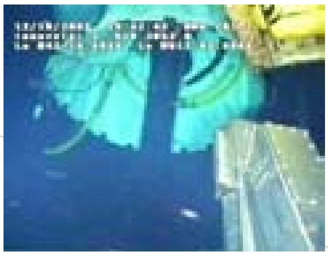
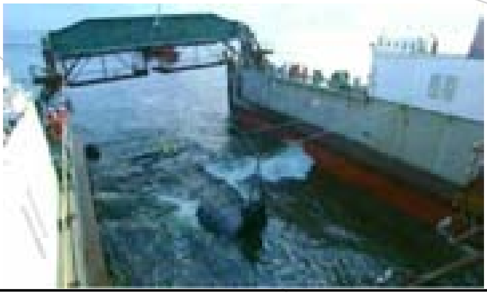
PRESTIGE WRECK - 2003

Summer 2003 – Extraction trials with flexible bags





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PRESTIGE WRECK - 2003

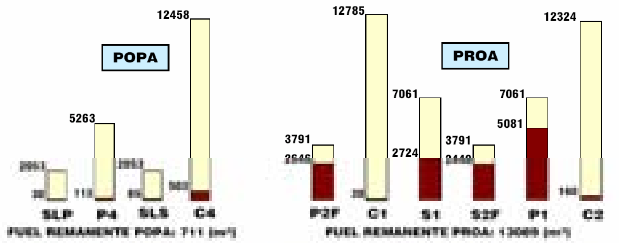
PRESTIGE

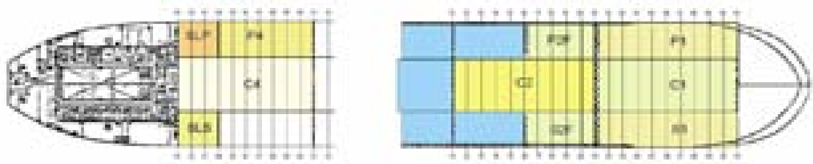
FUEL REMANENTE: 13800(m³)

CAPACIDAD TANQUE (m³)

FUEL REMANENTE (m³)

13.089 tons of HFO remaining in the Hull-Fore part





711 tons of HFO remaining in the Hull-Aft part

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PRESTIGE WRECK - 2004

2004 campaign – Main phases

- Fixing valves to the *Prestige* tanks by “hot tapping”.
- Extraction of the fuel by gravity: the shuttle is lowered and placed over the valve, filled with fuel, raised up to 60 meters deep, and the fuel is pumped to a tankship on the surface. More than fifty (50) shuttle filling operations were performed.
- A biorremediation solution was applied.

All the operations performed by Remote Operated Vehicles (ROV), which had to be adapted to work at 4000 meters deep.

The M/V “ODIN” and the “POLAR PRINCE”

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PRESTIGE WRECK - 2004

Extraction Valve

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PRESTIGE WRECK - 2004

Hot Tapping machine

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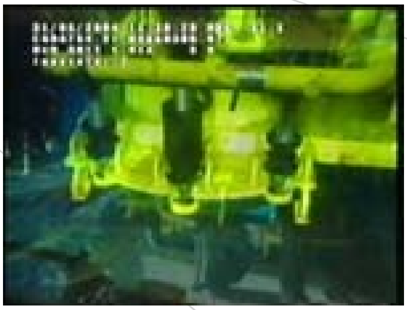
PRESTIGE WRECK - 2004

- In total 3 machines and 10 valves were built, operated from the ship *Polar Prince.*
- Two machines were used to drill six holes of 700 mm diameter in the 4 tanks of the *Prestige* bow wreck.



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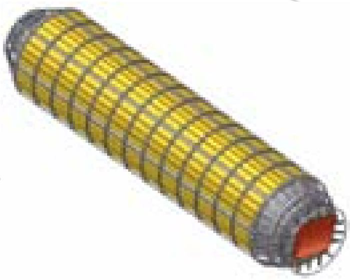
PRESTIGE WRECK - 2004

- The shuttles are cylinder-shaped rigid structures, made of 6mm thick aluminium, and with transversal and longitudinal stiffeners.
- Main particulars:
  - Length: 23,00 m
  - Outer / inner diameter : 5,40 / 4,70 m
  - Volume: 350 m^3
  - Weight / Buoyancy: 18 / 1 Tm.



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PRESTIGE WRECK - 2004

Shuttle lower door opened, over the extraction valve

Oil begins to flow through the valve

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PRESTIGE WRECK - 2004

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PRESTIGE WRECK - 2004

- The type of fuel involved was so viscous that the required pressure to pump the fuel out of the shuttle at the proper flow rate would be 170 bars, while the available pumps developed a pressure of 10 – 12 bars.
- A mechanism of drastic reduction of the viscosity was implement. It is called “core flow or ring flow”

This technique involves injecting a ring of water in the pump impeller so that a concentric flow can be established (water outside, fuel inside), thus reducing the wall friction.

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PRESTIGE WRECK - 2004

- The bioremediation system applied was a fertilizer NPK at 2,5% (in relation to the total fuel quantity remaining). This fertilizer has shown in the existing environmental conditions (light, temperature, water) a total hydrocarbons reduction greater than 30%, in 8 weeks.
- The cylinders were taken to the 3.800 m depth and the nutrients were introduced inside the tanks with through the valves and hot-tapping holes on the deck.

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PRESTIGE WRECK - 2004

2004 Campaign outcome

- By the end of October 2004 all operations in the Prestige sinking area were successfully concluded. The total amount of fuel extracted from the fore section was 13.600 ton. 51 shuttle extracting cycles were performed. The biorremediation solution was applied to the fore part.
- The overall cost of the operation was over 100 million €

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PRESTIGE WRECK - 2007

- During the summer of 2007 the Spanish government has undertaken a new campaign to assess the state of the Prestige wreck.
- The wreck, as well as the repaired leaks, during the years 2003 and 2004, was found in a very satisfactory state.
- After this inspection campaign it can be affirmed that the Prestige does not constitute any threat to the environment.

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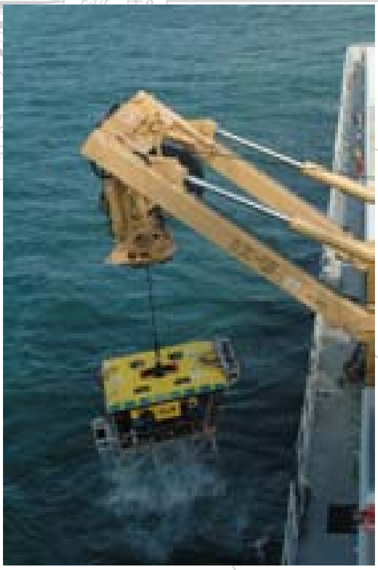
PRESTIGE WRECK - 2007



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PRESTIGE LESSONS LEARNED

Short overview of initiatives undertaken to improve the preparedness level to prevent future incidents.

AT NATIONAL AND INTERNATIONAL LEVEL

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Ban of single hull oil tankers loaded with heavy grades of oil

1 **SPAIN - The transportation of heavy grades of oil in single-hull oil tankers is prohibited with immediate effect by**

Royal Law Decree 9/2002, of december 13th,2002

2 **EU - Regulation (EC) No 1726/2003 of the European Parliament and of the COUNCIL, of 22 July 2003**

(amending Regulation (EC) No 417/2002 on the accelerated phasing-in of double-hull or equivalent design requirements for single-hull oil tankers)

3 **IMO –AMMENDMENT of THE MARPOL 73/78 ANNEX I**

RESOLUTION MEPC.111(50) adopted on 4 December 2003

AMENDMENTS TO THE ANNEX OF THE PROTOCOL OF 1978 RELATING TO THE INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION FROM SHIPS, 1973

(Amendments to regulation 13G, addition of new regulation 13H and consequential amendments to the IOPP Certificate of Annex I of MARPOL 73/78)

RESOLUTION MEPC.112(50) Adopted on 4 December 2003

AMENDMENTS TO THE CONDITION ASSESSMENT SCHEME (CAS)

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Resources Deployment

1 BILLION OF EUROS ARE ALREADY INVESTED in a three years period - 2006-2009

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CENTROS REGIONALES EN ESPAÑA

Centros españoles en la Zona Norte

CENTRO	ZONA DE OPERACIÓN
CNCS Madrid	
CRCS (MRCC) Bilbao	Zona SAR Atlántico, al este del meridiano de Longitud 004°10' W
CRCS (MRCC) Gijón	Zona SAR Atlántico, al este del meridiano de Longitud 004°10' W hasta el mº de L 006°30' W
CZCS (MRCC-VTS) Finisterre	Zona SAR Atlántico, al este del meridiano de L 006°30' W

SASEMAR informa a DGMM

La DGMM informa y recibe instrucciones del Ministro de Fomento

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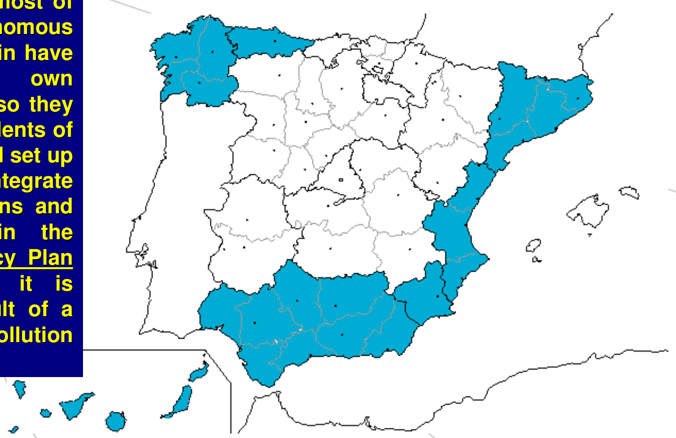
Oil Spill Contingency Plans

National Contingency Plan + Regional CP

After the Prestige, most of the coastal autonomous communities in Spain have developed their own contingency plans, so they can respond to incidents of coastal pollution and set up the procedures to integrate their response means and organizations within the National Contingency Plan in the case that it is activated as a result of a major maritime pollution incident.



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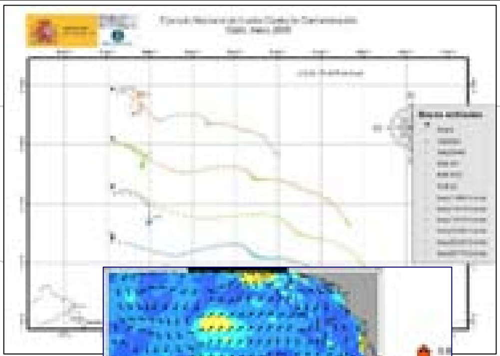
Operational Oceanographic Services

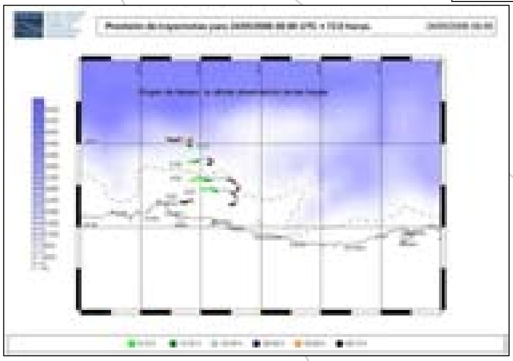
-During the last three years the basis for the future establishment of a Spanish operational oceanographic service has been set up.

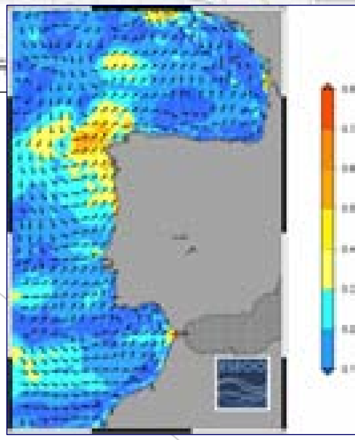
In the context of the R+D project ESEOO (www.eseoo.org), financed by the Spanish government, diverse public and private organisms from several countries have developed oceanographic models and tools.

These already have proven fruitful: the Spanish Maritime Safety Agency is successfully operating a computer system to predict future trajectories of floating objects; this tool is applicable to oil slicks as well as persons, small boats at sea., containers overboard, etc…

Operational Oceanographic Services - ESEOO







Execution of R+D plans

Scientific Intervention Plan. 730 researches and 113 R+D projects, structured in six areas:

1. Studies about the wreck
2. Oil spill fate and oceanic trajectories modelling
3. Environment fuel persistence
4. Effects of the fuel on the biological communities
5. Socio-economic impact
6. Coordination of R+D activities

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IOPC – Supplementary Fund

In the IMO Diplomatic Conference, celebrated on May 2003, related with the creation of a FIDAC Supplementary Fund, Spain presented a proposal concerning the raising up to 1.000 billion of €uros the indemnity level of the fund. Such Conference approved the 2003 Protocol of the IOPC Convention establishing indemnity limit of 750M SDR equivalent to € 1 Billion according with the Spanish proposal.

Supplementary Fund Member States are 20

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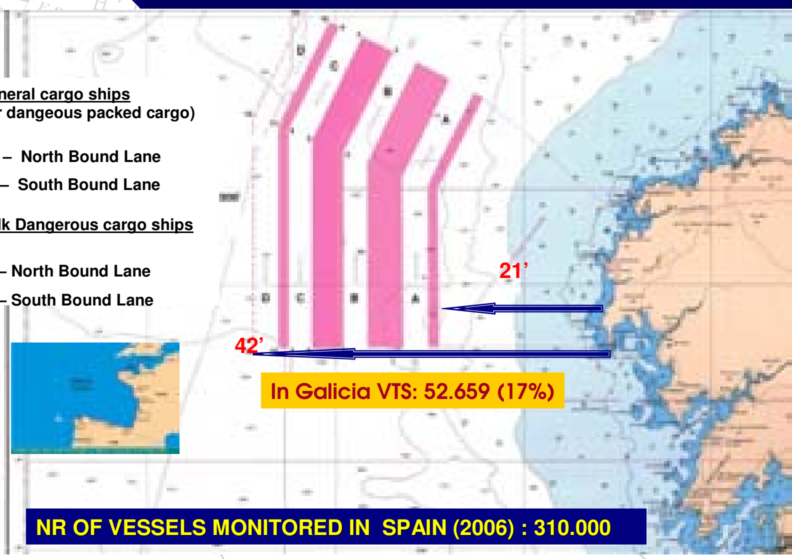
Offshore Shifting of the FinisterreTraffic Separation Scheme (TSS)



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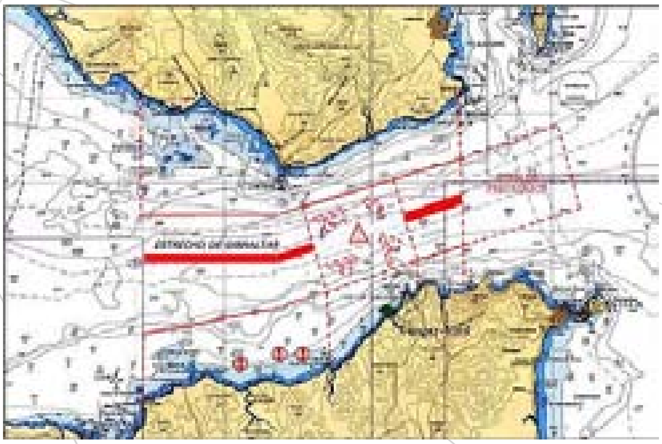
MODIFICATION OF THE GIBRALTAR STRAIT TRAFFIC SEPARATION SCHEME (TSS)



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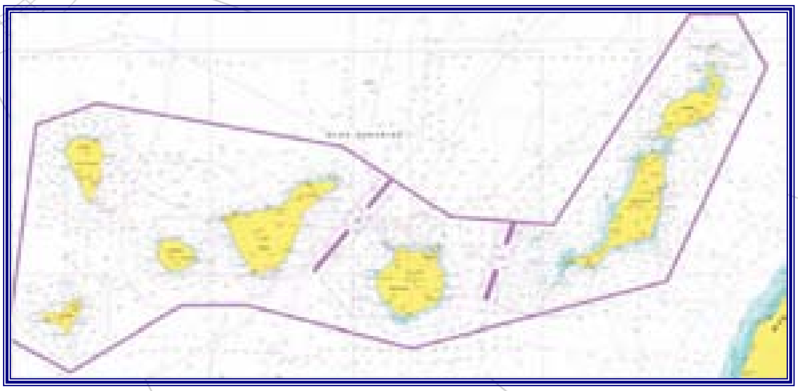
Particularly Sensitive Sea Areas (PSSAs)

Canary Islands



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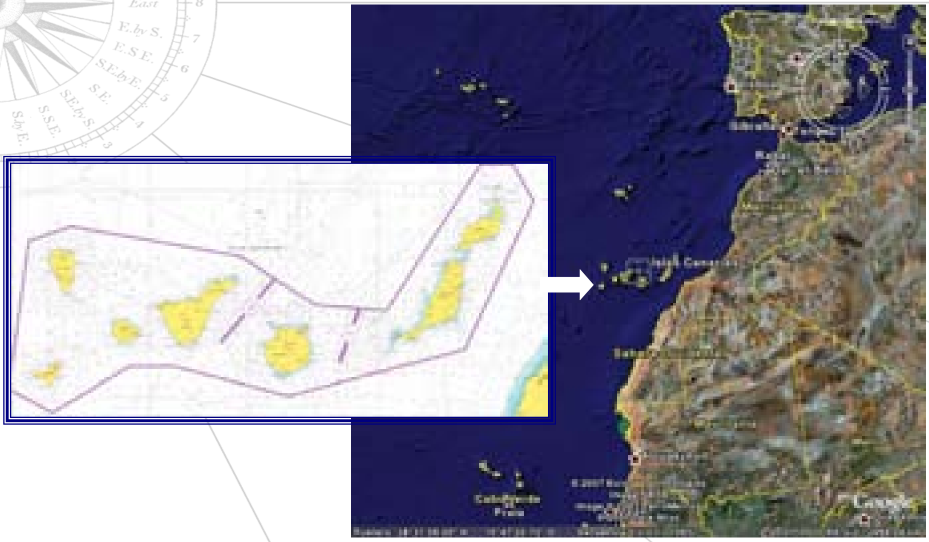
Canary Islands (PSSAS)



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EU ERIKA III package

Following the accidents involving the ERIKA on 12 December 1999 and the PRESTIGE on 13 November 2002, the European Union acted immediately to set up a defensive mechanism aimed at protecting Europe against the dangers of accidents and pollution.

The determined reaction of the European Commission to the sinking of the PRESTIGE made it possible to introduce stricter rules in the European Union:

- On 21 October 2003, the Union forbade single-hull oil tankers transporting heavy fuel oil to enter or leave European ports and adopted a timetable for the withdrawal of single hull oil tankers by the year 2010.
- Since 2003 the Union can call on the European Maritime Safety Agency, which is responsible for monitoring the effective implementation of European maritime safety legislation.
- The Union has strengthened the legislation relating to the inspection of ships by the port State,classification societies and the traffic monitoring and information systems aimed at improved traffic monitoring in European waters.

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EU ERIKA III package

The package consists of the following seven proposals:

1. A proposal for a Directive on the conformity requirements of flag states;
2. Amendment of the Directive on classification societies;
3. Amendment of the Port State Control Directive;
4. An amendment of the Traffic Monitoring Directive;
5. A proposal for a Directive on accident investigations;
6. A Regulation on liability and compensation for damage of passengers in the event of maritime accidents;
7. A Directive on the extra-contractual liability of shipowners.

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The 3rd set of measures in favour of maritime safety

Following the accidents involving the ERIKA on 12 December 1999 and the PRESTIGE on 13 November 2002, the European Union acted immediately to set up a defensive mechanism aimed at protecting Europe against the dangers of accidents and pollution.

Improvement of the quality of European flags

The aim of this measure is to ensure that all Member States verify the application of international rules on the ships sailing under their flag.

- Strengthening the application of international rules of maritime safety;
- Establishing powerful and high-quality maritime administrations and an effective audit system for flag States;
- Harmonisation of the application of international conventions between Member States;
- Increased cooperation with third countries and the possibility to offer third country flags the same advantages as European flags (relaxing controls for high-quality flags);
- Improving the image of the European fleet and to make it attractive to professionals.

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Review of the legislation on port State control

The aim of this measure is to simplify and improve the quality and effectiveness of visits and inspections carried out by the port State, while concentrating on the more dubious ships.

This proposition responds to the expectations expressed by the European Parliament and the Council as a result of the PRESTIGE accident for **strengthening of port State control**. The objective is to **render the Community system more discouraging**, particularly with respect to those ships posing the greatest risk, while relieving the owners of good quality ships of potentially excessive controls which could possibly damage their competitiveness.

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Amendment of the Directive on 'Traffic Monitoring'

The aim of this measure is to define a clear and precise legal framework on refuge zones in order to guarantee the identification of the authority responsible for the designation of refuge zones and that the authorities possess the necessary elements for decision-making.

This proposal also aims to **continue the development of SafeSeaNet**, which is a data exchange platform between the maritime administrations of the Member States

Finally, to **improve the safety of fisherman at sea**, it is proposed that a system of automatic identification (AIS) be extended to fishing vessels over 15 metres

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Improve the rules in force regarding classification societies

The aim of this measure is to bring about a radical improvement in the quality of the work undertaken by those bodies responsible for inspection, visiting and certification tasks onboard ships on behalf of the Member States, known as “classification societies”.

Proposed Directive on enquiries following accidents

The aim of this measure is to set up a common European Union framework in order to guarantee the effectiveness, objectivity and transparency of enquiries following maritime accidents.

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Regulation on responsibility and compensation to passengers in the event of an accident

The aim of this measure is to incorporate the international provisions of the Athens Convention of 2002 into a European regulation on the responsibility and compensation for damages suffered by passengers in the event of an accident.

Directive on the civil liability of ship owners

The aim of this measure is to make ship owners more responsible in order to ensure improved prevention of accidents and pollution incidents.

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State of progress of the discussions in the Council of Ministers and in the European Parliament on the 3rd package

The Commission
hopes that the 3rd package will be adopted, at the latest under the French Presidency in the second half of 2008.

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THANKS VERY MUCH

СПАСИБО ОЧЕНЬ

¿QUESTIONS?

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