

# Shoreline management in France

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Ministry of Ecology, Sustainable Development and Energy

[www.developpement-durable.gouv.fr](http://www.developpement-durable.gouv.fr)

# SUMMARY

- Introduction : French coasts & French doctrine
- Strategy proposal
- The strategy
  - Principles & recommendations
  - Action program
- Highlighted actions
  - Observation & knowledge
  - Call for proposal « managed realignment »

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# French coasts

- About 6,000 km shoreline
- Different landscapes :
  - 42 % rocky coasts
  - 33 % sandy coasts
  - 17 % artificial coasts
  - 8% muddy coasts
- 27% of the areas within the 1st 500 m from the shoreline landward are artificial, 45% are natural terrestrial and aquatic areas
- 6.1 millions inhabitants (Metropolitan France)
  - 12% of the population on 4% of the area
  - $\Rightarrow$  Population density on coastal zones = 281 inh/km<sup>2</sup> (average: 113)
  - Economic activities : tourism, fishing, sailing, nature...
  - Tourism = 9 billions value-added





# French coasts

- 44% of the shoreline is stable but  
25% of the shoreline suffers from erosion
- Distinct problems in different regions:
  - High erosion in the north with associated flooding risks (lowland areas)
  - Locally high erosion in the South in touristic areas
  - Specific problems overseas (mangrove swamps, coral reefs...)



# French doctrine

- French “SHORELINE MANAGEMENT GUIDE” (2010)

- 1. Coastal zones

- Description of coastal landscapes : rocky coasts, beaches, dunes, estuaries, lagoons, coral reefs...
    - Erosion processes (maritime, climatic and anthropic processes)
    - Dynamics of hydrosedimentary systems (cells, interactions, time scales...)

- 2. Decision Making Process

- Juridic framework and Stakeholders' responsibilities
    - 4 possible management options
    - Decision making tools and project management

- 3. Project implementation

- Preliminary studies, coastal monitoring
    - Sea-defenses techniques: description and limitations

- Promotion of a better knowledge of natural systems, ICZM, environmentally friendly and soft techniques

- [http://www.developpement-durable.gouv.fr/spip.php?page=Gestion\\_trait\\_cote](http://www.developpement-durable.gouv.fr/spip.php?page=Gestion_trait_cote)



# Building the strategy

- However, there was a real need to adopt a more strategic point of view:
- Guide  $\Leftrightarrow$  Technical point of view
- Strategy  $\Leftrightarrow$  How to deal to avoid that?



a) 8 :42, b) 9 :30 & c) 9 :36

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## 9

- Prévention des risques



# Strategy proposal

- A working group gathering
  - State,
  - Local authorities,
  - NGO,
  - Employers,
  - Workers,
  - Experts

piloted by Alain Cousin, Member of the French National Assembly worked from December 2010 to May 2011. It produced a concerted report (September 2011)

- This document lists the shared statements, principles, strategic recommendations and suggests several actions.



Propositions pour une stratégie nationale de gestion du trait de côte, du recul stratégique et de la défense contre la mer, partagée entre l'État et les collectivités territoriales

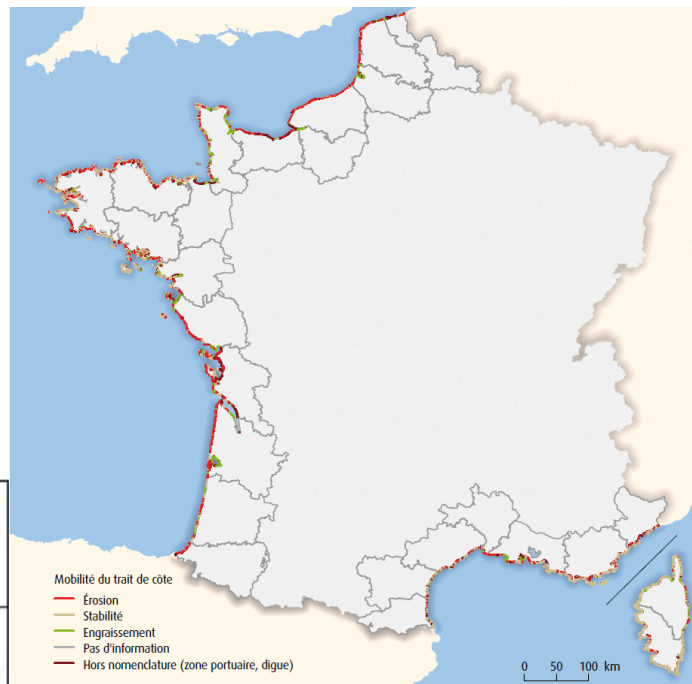


RAPPORT présenté par  
Monsieur Alain COUSIN  
Député de la Manche

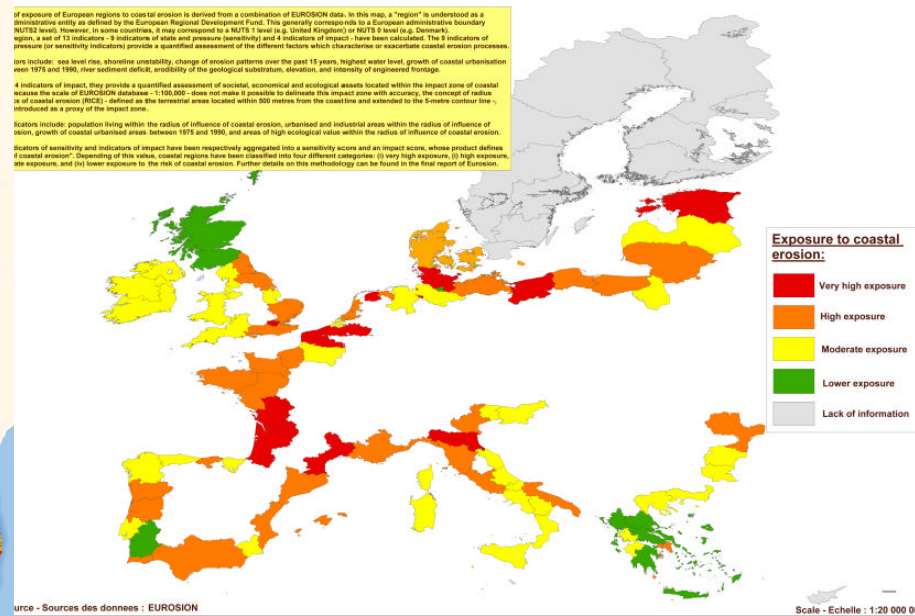


# Shared statements

- 7.6 millions inhabitants in coastal districts (2006)
- + 4.5 millions people in coastal departments by the year 2040
- 25% of the coastline is exposed to erosion
- Climate change + sea level rise = erosion acceleration
- ⇒ Growing vulnerability if population growth is not managed



Exposure of European regions to coastal erosion



# Shared statements

- Lack of knowledge:
  - Erosion is not known on shared basis
  - No vision of erosion evolution in 2020, 2050, 2100...
  - No clear vision of coastal defenses (location/state/condition...)
- ⇒ Assessment of erosion impact on ecosystems, activities and goods to improve



# Shared statements

- Technical solutions are well defined

- Do nothing
- Adaptation, mitigation
- Strategic realignment
- Hold the line



- But not easy to implement because erosion is often a slow process taking place on large areas exceeding local authorities' competence and social acceptance of managed realignment is weak

# Shared statements

- Governance and funding are complex
  - Many actors (State, local authorities, private owners...)
  - Many public policies (town planning, coastal risks, public maritime domain...)
  - No leader for coastal management policy
  - No clear vision of the cost of the necessary protections



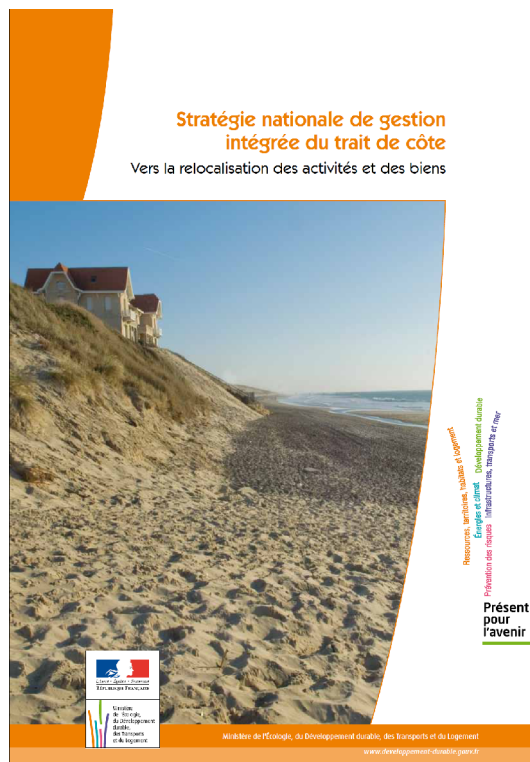
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# The strategy

- The strategy proposal merged into the Ministry's “National strategy for shoreline management – towards activities and goods resettlement” in March 2012





# Common principles

1. Coastline is moving: it cannot and it must not be fixed everywhere
2. Managed realignment is to be planned now, although it is a long term process
3. No good or activity has to be settled in areas submitted to high coastal risks
4. Erosion and flood risks have to be considered together in “coastal risk prevention plans”
5. Integrated coastal zone management has to take into account economical, social, environmental and cultural issues
6. Integrated coastal zone management must balance town-planning, land-use planning, risk prevention and coastal development
7. Erosion and flooding risks have to be anticipated (10/40/90 years)
8. Coastal risks and ecosystems knowledge have to be shared with stakeholders

# Strategic recommendations

1. Articulate spatial scales: hazard sources, land planning and operational land management
2. Articulate land planning time scales (10, 40 & 90 years): take into account erosion's evolution, anticipate resettlement as an alternative to holding the line based on cost-benefit analysis
3. Develop a consistent coastal management dealing with erosion **and** flooding risks, designate a leader to design the spatial planning and to ensure local stakeholders respect the plan
4. Justify coastal development through cost-benefit and multi-criteria analysis
5. Plan heavy infrastructure to protect the coastline only in strategic areas and design it in a way to allow long term resettlement
6. Use soft techniques to protect medium populated areas or predominantly agricultural areas
7. Protect and restore coastal ecosystems to limit coastal erosion and disperse marine energy

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# Action program

- The strategy is a shared framework to be declined by local authorities
- It also encompasses a program of 9 actions for 2012-2015 through 4 axes:
  - A) Develop shoreline observation and identify the main erosion-prone areas
  - B) Design strategies shared by public and private stakeholders
  - C) Promote a new doctrine of spatial recomposition
  - D) Precise financing methods



# A – OBSERVATION & KNOWLEDGE

- **1 – Create a coastline observatory network**
  - Promote a shoreline observatory network
  - Update “French atlas of hydraulic and sedimentary data involved in coastal change” (by 2015)



# A – OBSERVATION & KNOWLEDGE

- **2 – Map erosion risk and identify areas at risk of coastal erosion**
  - Define a national indicator for erosion (2012-2013) to qualify hazard
  - Identify areas where potential significant erosion risk exists (2013) crossing the erosion indicator and land-use knowledge





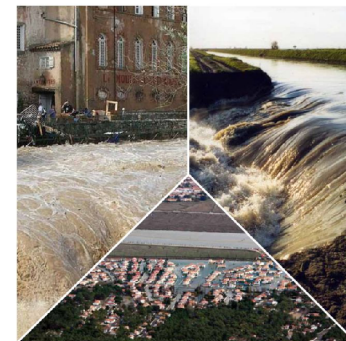
# B – SHARED STRATEGIES

- **3- Promote local strategies in areas at risk of coastal erosion**
  - Promote local strategies
    - Ensure that coastal erosion is integrated in local flood risk management plans designed for the EU Floods Directive
    - Design such strategies in areas without flooding risk
  - Promote consistency for erosion and flooding risk management
    - French “fast flooding plan” and “PAPI” (local flooding prevention programs) are going to enlarge their objectives and integrate coastal erosion issues



## Plan submersions rapides

Submersions marines, crues soudaines et ruptures de digues



# B – SHARED STRATEGIES

- **4 – Better use of existing rules and tools**
  - Develop shared diagnosis and orientations (State and local authorities)
  - Integrate coastal erosion in large planning documents (SCOT) to coincide with sediment cells
  - Integrate coastal erosion risk using the existing planning tools and rules, and modify them if necessary (Coastal risk prevention plans, flood risk management plan, coastline act)
- **5 – Integrate coastal erosion risk in the management of public maritime domain**
- **6 – Communicate to increase public awareness of coastal erosion risk**



# C – NEW DOCTRINE

- There are essentially 2 options:
  - Hold the line
  - Prepare managed realignment
- **7 – Prepare managed realignment**
  - Call for proposal: « managed realignment » (2012)
  - Using lessons learned, publish a national guide for managed realignment
- **8 – Innovative ecological engineering**
  - Call for proposal: “ecological engineering” (2011) promoting environmentally friendly soft techniques



# D - FUNDING

- In France, land owners have to finance their own sea defenses, the State may co-finance if useful and fair. Local authorities are allowed to study and build sea defenses in case of emergency or general interest.
- **9 – Identify funding principles to finance integrated shoreline management policy**
  - Stating State's priorities
  - Creating regional commissions to study funding demands (Common labelling instance with PAPI & PSR...)



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# ACTION 1.1 – Shoreline observatory network

- The aim is to build a national observatories' network sharing EU INSPIRE Directive compatible data.
- In 2011, BRGM listed the existing French observatories. There exist regional observatories: Aquitaine, Languedoc-Roussillon, Normandie-Picardie... and local initiatives on smallest areas.
  - BRGM organized in 2011 « shoreline observatories' days »
  - BRGM works on a common observatory for the Mediterranean seafront
  - BRGM works on common tools and methods for the regional observatories





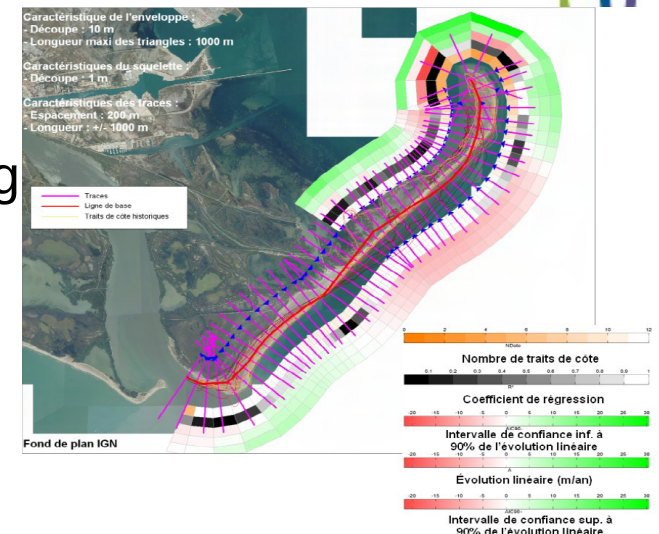
# ACTION 1.2 – Update “French atlas of hydraulic and sedimentary data”

- Capitalize data updating “French atlas of hydraulic and sedimentary data involved in coastal change” = Catalogues sédimentologiques (by 2015)
- Share summarized physical knowledge on the shoreline: forcing agents, anthropic impacts, evolution of the coastline.
- Existing books date back to the 80's
- Feasibility study designed by CETMEF in 2011
- Specifications and governance in progress:
  - Funding, management and contributors
  - Data sharing
  - Database...



# ACTION 2.1: National indicator for erosion

- Lack of national map of heavy populated erosion-prone areas
- First step: define a national indicator for erosion (2012-2013) to qualify hazard (weak – medium – high)
- Indicator based upon mean speed of erosion, topographic and bathymetric aspects
- It will allow to draw a map (1/100 000) of erosion exposure on all national coasts (Metropolitan France and overseas)
- Methodology in progress (CETMEF)
- Mediterranean CETE develop an automatic tool to forecast erosion extrapolating existing information on shoreline's position



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# ACTION 7.1: “managed realignment”

- The call aims at promoting innovative projects of goods and activities resettlement in Metropolitan France and overseas
- It promotes **experimentation** and **spatial recomposition**
- State is financing 50% of preliminary studies (technical, economical, social, land use, environmental, administrative... up to 150 k€)
  - strategy
  - operational program of common actions for resettlement
- Eligible projects:
  - Areas exposes to coastal erosion and/or flooding risk
  - Any coastal area
  - Urgent, medium or long term resettlement
  - Important or exemplary relocation (building, activity, infrastructures...)
  - Development of the vacant areas

# ACTION 7.1: « managed realignment »

- Project leader:
  - Local authorities, cooperation of local authorities
  - State partnership
  - Association of all stakeholders
- Selection criteria:
  - Leader's capacity (project management, funding, partnership...)
  - Governance structure, consultation, communication
  - Project characteristics (management of urban and natural areas, importance of resettlement...)
  - Study plan (consistency, relevance, innovation, development...)
- Monitoring process:
  - 2 meetings/year + National seminary
  - State's experts

# ACTION 7.1: “managed realignment”

- Few sites will be elected. Choice of candidates in December 2012
- These experiences will be analyzed to build a national methodology for managed realignment (Action 7.2):
  - Identify situations where managed retreat is relevant
  - Identify the appropriate existing legal tools
  - Identify funding/indemnity sources
  - Long term cost-benefit analysis methodology
  - Consultation and communication processes
  - Development of the vacant areas





# Thank you for your attention

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