

Dover Strait survey strategy

References : a) Dover Strait survey agreement dated 19 October 2000
b) Letter n° 110 SHOM/EM/NP dated 15 January 1999

1. INTRODUCTION

An hydrographic survey strategy has been agreed in 2000 for the Dover Strait / Pas de Calais area between the hydrographic services of Belgium, France, Netherlands and the United Kingdom (see Annex 1).

This agreement aimed at sharing the responsibility of hydrographic surveys in the “North Hinder South” and “Strait of Dover and Adjacent Waters” TSS (Traffic Separation Scheme).

Each country has its own survey policy within its area of responsibility. This policy is explained in the letters of intent attached to the agreement. Any subsequent change to national survey policy has to be notified to the other participants in this agreement.

During the NSHC 27th meeting, a working group was established to determine a new survey strategy for the North Sea area. The following proposals can be considered as an input for this working group tasks.

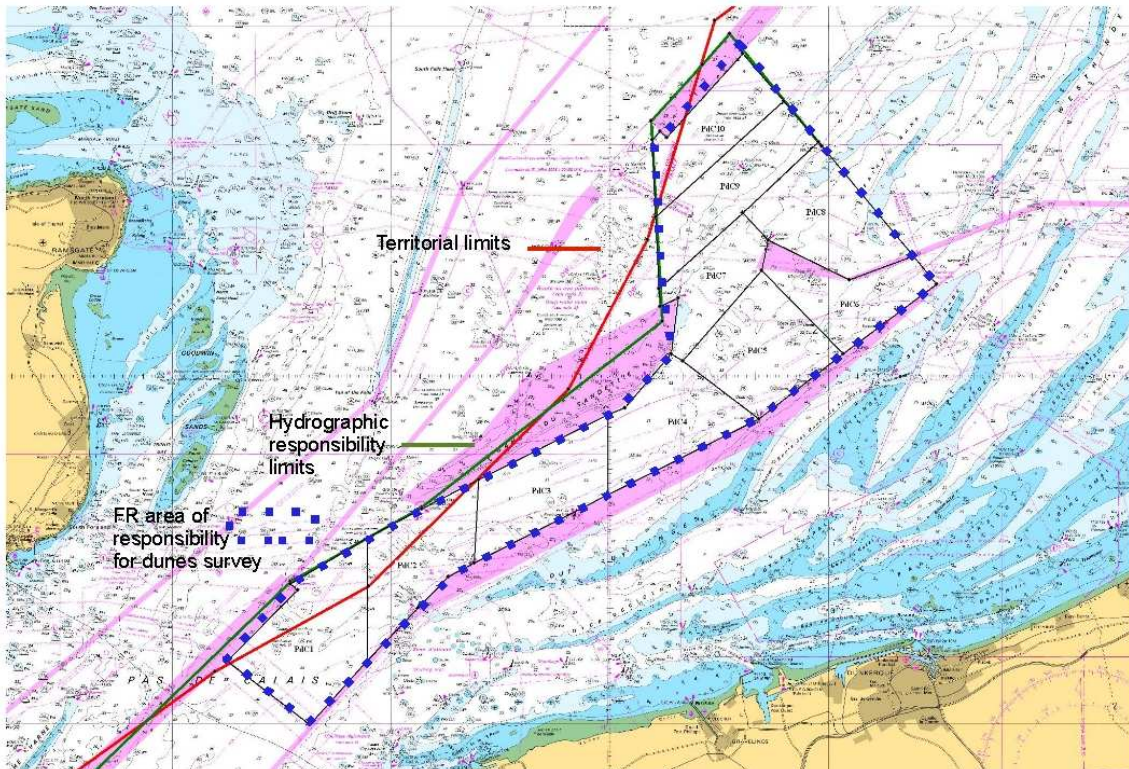
2. FRENCH SURVEYS IN THE STRAIT OF DOVER

Since 2000, France has conducted one or two surveys per year in its area of responsibility (see picture). This represents an average of 1-2 months survey per year.

The survey policy is described in the ref. b) document and is attached to the ref. a) agreement (see Annex 1). The policy is as follows:

- annual survey for the most dangerous dunes
- complete survey for the whole area within a ten years time limit

It was agreed that this policy should be reviewed after a five year experience period. This has been done within the “Dunes” project where the interim results of the surveys have been used.



At the same time, studies have been conducted to assess dunes migration and evolution.

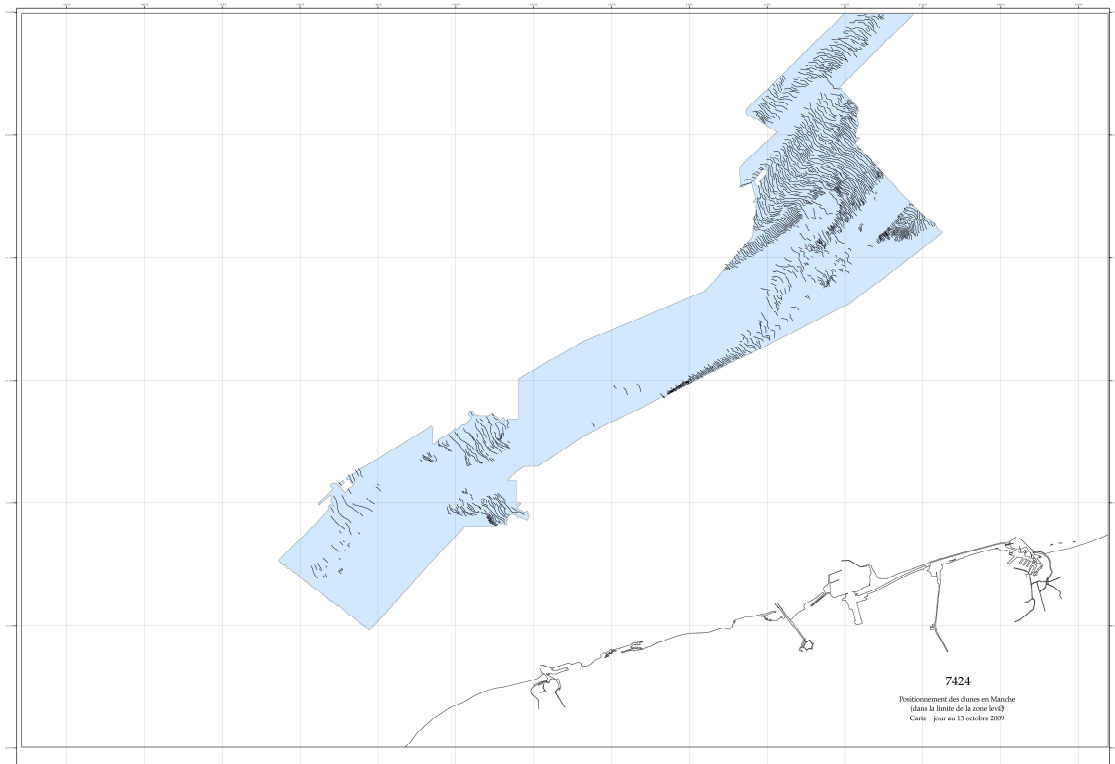
3. PROPOSALS FOR A NEW SURVEY STRATEGY

As mentioned above, different studies have been done for dunes monitoring. One of them is a research project (“Dunes” project) on sand dunes evolution in the Dover Strait. This project started in 2004 and ended in 2009. One of the objectives of this study was to assess the interest of changing the survey strategy in order to make the surveys more efficient. The main results of this study are below.

3.1. SURVEY RESULTS

The picture below sums up the results of the bathymetric surveys that have been done in the French area of responsibility. All the surveys have been done using MBES system.

One can notice that most of the dunes are located in the northern part of the area and that the central and southern parts are almost empty. This result can argue in favour of a new survey strategy focusing on areas where dunes are actually present.



3.2. DUNES CLASSIFICATION CRITERIA

A proposal for dunes classification criteria has been done. Around 30 criteria have been identified (see Annex 2). The objective of this classification is to have a robust and shared classification tool in order to allow pluri-annual or multi-area analysis.

3.3. DUNES DANGEROUSITY CRITERIA

In accordance with the surveys results analysis, some dangerousness criteria based on a combination of depth and dunes migration speed have been established. Other parameters such as bottom friction, asymmetry or sinuosity should allow a more accurate analysis but need further studies to be taken into account. The depth criterion is based on ship maximum draught in the area (24 m gross draught and 28 m taking into account supplementary sinkage) and the migration speed per year criterion is based on a 1 cm migration on a 1/50 000 scale chart.

The following criteria are proposed :

- cat 1 : any dune with a depth less than 24 m is highly dangerous.
- cat 2 : any dune with a depth between 24 and 28 m and whose migration speed is superior to 25 m / year is highly dangerous.
- cat 3 : dunes with depth between 24 and 28 m and migration speed between 5 and 25 m / year are dangerous.

3.4. SURVEY RESULTS AND DUNES ANALYSIS

Surveys from 2002 to 2009 have been analysed in view to assess the dunes migration and evolution dynamics. It appears that in the whole area dunes frequently migrate in opposite directions and that it is possible to identify “sedimentary cells” where dunes migrate in the

same direction. Thus monitoring a limited and relevant number of dunes within those cells is sufficient to assess the cells dynamics. With regards to observed migration speeds, a 1-2 year time period seems relevant for this monitoring.

In the survey area, 889 dunes have been identified using the classification criteria mentioned in 3.1. Among those dunes :

- 36 are in cat 1 (highly dangerous)
- 29 are in cat 2 (highly dangerous)
- 317 are in cat 3 (dangerous)

The rest have a depth superior to 28 m and are classified as non dangerous.

4. SURVEY STRATEGY

Three categories of surveys are proposed :

- short term surveys : every one or two year
- medium term surveys : every ten year
- long term surveys : every twenty year

For the French area of responsibility the following rules are proposed :

- short term : 4-5 survey tracks + 2 transect tracks on a 10-15 dunes sample every 2 year
According to the surveys results, time scale for short term surveys could be extended (i.e 4-5 years).
- medium term : exhaustive surveys of isolated dunes areas or dunes fields areas every 10 year. This areas are yet to be defined within the “Dunes” project.
- long term : survey of the whole area of responsibility every 20 year. In order to get a synoptic and realistic picture, this survey should be done within a 2 year delay.

With regards to the current survey strategy, the proposed one would have the following advantages :

- to focus on the most dynamic and most dangerous dunes and thus to allow a more accurate and more reactive monitoring;
- to dedicate only the necessary ship resource to do the survey and thus to make the use of survey fleet more efficient

Impact on at sea surveys duration

The estimated ship budget for at sea surveys is as follows :

- short term survey : 3 weeks every two year
- medium term survey : 3 weeks every six year (at first guess), in addition to the short survey

On a six year period, the total ship budget would be around 12 weeks.

The current budget is around 4-6 weeks per year that is to say 24-36 weeks for a six year basis.

5. AREAS OF RESPONSIBILITY

The current areas of responsibility for the Dover strait surveys had been defined with regards to hydrographic considerations and in accordance with the traffic separation scheme. Water jurisdiction limits or charting responsibility limits were thus little taken into consideration. This might lead to difficulties, discrepancies or lacks in charts updates. It is therefore suggested that, should a new survey strategy be adopted, more consistency with those limits should be looked at.

6. PROPOSALS

The following list of actions is proposed :

- a) to discuss the results of the study (all)
- b) to adopt common dunes characterization criteria (all)
- c) to discuss on areas of responsibility for survey vs charting (all)
- d) to propose a survey strategy (each nation)

Annex 1

Arrangement between Belgium, the United Kingdom, France and the Netherlands for the
“Dover Strait survey strategy”

Annex 2

Interim report : proposal to modify the hydrographic surveys in the North Sea navigation channel