C2.B
2011

France (West Coast)
From Pointe de Penmarc'h to the Spanish border

Sailing Directions

ISSN 0223-534X

Service hydrographique et océanographique de la marine
[French Navy Hydrographic and Oceanographic Service]

[photo]

Port of La Rochelle

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2011 edition

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HYDROGRAPHIC OFFICE
ORIGINAL

13 JUN 2011

DOCUMENT

ADMIRALTY WAY TAUNTON

[diagram]

FR	EN
INDEX GÉNÉRAL DES INSTRUCTIONS NAUTIQUES ET DES LIVRES DES FEUX	GENERAL INDEX OF THE SAILING DIRECTIONS AND OF THE LISTS OF LIGHTS
Limites de la région décrite dans les livres de feux identifiées par une référence cerclée (ex.:ⓙ)	Limits of the region described in the Lists of Lights identified by a circled reference (e.g.ⓙ)
Limites de la région décrite dans les instructions nautiques identifiées par une référence simple (ex.: **C4**)	Limits of the region described in the Sailing Directions identified by a simple reference (e.g. **C4**)
Limites de la région décrite dans les instructions nautiques britanniques identifiées par une référence simple (ex.: **6**)	Limits of the region described in the British Sailing Directions identified by a simple reference (e.g. **6**)

0.1. – General chart index.

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0.2. – General chart index.

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ISSN 0223-534X

SERVICE HYDROGRAPHIQUE ET OCÉANOGRAPHIQUE DE LA MARINE
[FRENCH NAVY HYDROGRAPHIC AND OCEANOGRAPHIC SERVICE]

SAILING DIRECTIONS

VOLUME C2.B

FRANCE

(WEST COAST)

FROM POINTE DE PENMARC'H TO THE SPANISH BORDER

2011

Edition updated to 26 March 2011
(Weekly group of *Notices to Mariners* no. 12)

This edition cancels and replaces the previous editions

Before using this publication read the important notices that precede the table of contents

C2B-INA

All correspondence relating to this publication must be addressed to:

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[French Navy Hydrographic and Oceanographic Service]

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FOREWORD

07 The *Sailing Directions, volume C2B, France (west coast): from Pointe de Penmarc'h to the Spanish border*, 2011 edition, cancel and replace the *Sailing Directions C2B*, 2005 edition.

13 Like all *Sailing Directions* covering the coasts of metropolitan France, this publication is intended to meet the requirements of professional mariners while at the same time providing necessary information to leisure mariners. Marinas and anchorages for recreational users, their access channels, their capacities and their equipment are described in detail; the text regarding them is usually illustrated with diagrams and photographs.

19 Information received from the French naval authorities, from the Departmental Directorates for the territories, from the General Councils of the Departments, from the Maritime Affairs service, from commercial ports, from marinas, from masters of French vessels and from leisure mariners is taken into consideration when producing these *Sailing Directions*.

25 These *Sailing Directions* are published at intervals of around three years. They are updated regularly by means of *Notices to Mariners* (www.shom.fr).

The General Armaments Engineer (Hydrographer)
BRUNO FRACHON
Director General of the SHOM

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CORRECTIONS

07 Paste in chronological order, on this page and the following pages, the section relating to this publication from the summary tables of notices included in weekly groups nos. 10, 20, 30, 40 and final of each year (see *Guide du Navigateur* [French Mariner's Handbook], *volume 1*).

CORRECTIONS

CORRECTIONS

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IMPORTANT NOTES

0.3.1. PURPOSE OF THE SAILING DIRECTIONS

01 *07* The purpose of the *Sailing Directions* is to provide mariners with all the nautical information that may be of use to them and that is not shown on marine charts or that is included in too brief a fashion.

13 However, in order to draw attention to certain important points, the *Sailing Directions* may mention information shown on French marine charts or in other nautical publications published by the *Service hydrographique et océanographique de la marine* (SHOM) [French Navy Hydrographic and Oceanographic Service], such as: *Guide du Navigateur* [French Mariner's Handbook], *Livres des Feux et Signaux de brume* [Lists of Lights and Fog Signals], *Ouvrages de radiosignaux* [List of Radio Signals], *Annuaires des marées* [Tide Tables], *Atlas de courants de marée* [Atlases of Tidal Currents].

19 In this case, mariners must always refer to the chart or publication cited and use the information that it provides.

25 In the text and in the *Sailing Directions* indices, the following may be cited, in addition to French charts:

- on the one hand, foreign marine charts forming part of the supplementary portfolio put together by the SHOM to supplement its own collection, kept up to date in its *Notices to Mariners*. These supplementary foreign charts are described in the SHOM *Catalogue des Cartes Marines et des Ouvrages Nautiques* [Catalogue of Marine Charts and Nautical Publications] (the SHOM does not sell these charts);
- on the other hand, various foreign marine charts that do not form part of the supplementary portfolio. This citation does not imply any opinion regarding their interest in relation to other charts, nor any incitement to use them in preference to others.

0.3.2. GENERAL PLAN OF THE PUBLICATION

01 *07* The first chapter, devoted to "General Information", provides information regarding meteorology, oceanography and navigation in the area traversed and the ocean routes leading to the ports described, along with general information concerning the various countries covered by the publication.

13 The chapters that form the main body of the publication describe the coast in sections. For each section of coast, the description is given for a mariner arriving from the open sea and discovering the coast gradually until they make landfall.

19 The coast is then described in a continuous and linear manner, mentioning in particular the ports and anchorages.

25 The annexes contain additional information on the ports and graving docks. In addition, they provide vocabulary of a geographical or nautical nature in the national or regional languages used in the countries mentioned in the publication. Cartographic indices show the charts mentioned in the publication.

0.3.3. INFORMATION CONCERNING NAVIGATION

01 *07* The *Sailing Directions* describe the coasts and main landmarks, draw attention to the dangers and provide information regarding landfall, regulated routes, recommended tracks, tides, currents, beaconage, pilotage, anchorages and ports.

13 The directions provided regarding recommended tracks and anchor berths are not imperative: the mariner must ensure, by prior examination of the chart, that they can be followed in light of the meteorological situation, the currents and the tide, and the dimensions and turning capacity of the vessel.

19 The information provided with regard to the location of floating beacons should only be accepted with care, as they may disappear or be moved out of position.

01 **0.3.3.1. Lights and fog signals**

07 The *Sailing Directions* describe neither the light characteristics of lighthouses, beacons and buoys, nor the characteristics of ordinary fog signals. See the *Lists of Lights and Fog Signals*.

01 **0.3.3.2. Radio navigation systems**

07 The *Sailing Directions* do not describe these aids to navigation. See the publication *Radionavigation maritime* [Maritime Radio Navigation].

01 **0.3.4. REFERENCE UNITS AND AXES**

07 The azimuths, course angles and bearings are counted from 0 to 360° from true N and to the E.

13 Bearings are given from the sea.

19 Longitudes are referred to the international meridian (Greenwich meridian).

25 Distances counted at sea are expressed in nautical miles (1852 m) and in decimal fractions of a mile.

31 Times are given in the time in use in the country involved, unless otherwise indicated.

01 **0.3.5. REFERENCE LEVEL OF THE DEPTHS ON THE CHARTS CITED**

07 Mariners' attention is drawn to the fact that, as the chart datum on the marine charts varies according to the country, the depths shown on French charts are referred to datums that differ depending on the region represented; it is effectively an international rule that the soundings shown on these charts are preserved in the reproduction of foreign charts.

01 **0.3.6. GEOGRAPHICAL NAMES – TOPONYMS**

07 A single place may have different names depending on the date of publication of the documents used. When an old toponym is still commonly used, it is indicated in brackets after the current toponym, at the place in the text where the place is described.

13 In order to establish a concordance between various names for a single place, see the alphabetical index at the end of the publication.

01 **0.3.7. UPDATING OF PRINTED PUBLICATIONS**

01 **0.3.7.1. Documents of corrections**

07 The *Sailing Directions* must be kept up to date using *Notices to Mariners*.

13 The *Sailing Directions* are corrected between each edition by *Notices to Mariners*, which can be consulted on the SHOM website (www.shom.fr).

19 In addition, mariners must purchase the new editions of the *Sailing Directions*, which periodically cancel and replace those they are using, as soon as they appear.

01 **0.3.7.2. Descriptions of the corrections**

07 The text of the *Sailing Directions* includes in the margin reference numbers consisting of two digits. Each number designates a conventional paragraph, in principle of less than twelve lines, that may not correspond to an ordinary paragraph. These numbers are intended to facilitate the updating of the publication.

13 The tables and plates are referred to by the number of the section to which they refer. They are inserted after the section concerned.

19 The *Sailing Directions* are corrected by replacing, adding or deleting the complete paragraphs designated by their reference number defined above. The tables and plates may be subject to occasional corrections.

25 Mariners are invited to refer to the sections of the *Guide du Navigateur, volume 1: documentation et information nautiques* [French Mariner's Handbook, volume 1: nautical documentation and information], which deal with the updating of the *Sailing Directions*.

01 **0.3.8. SYMBOLS AND ABBREVIATIONS**

07 The main symbols and abbreviations used in the publication are as follows:

13

N	north	km	kilometre	HF	high frequency
S	south	LW	low water	MF	medium frequency
E	east	HW	high water	UHF	ultra high frequency
W	west	NT	neap tide	VHF	very high frequency
M	nautical mile	ST	spring tide	UT	universal time
m	metre	ETA	estimated time of arrival	h	hour

0.3.8. – Symbols and abbreviations.

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TABLE OF CONTENTS

2. FROM POINTE DE PENMARC'H TO PRESQU'ÎLE DE QUIBERON

3. BELLE-ÎLE. FROM BAIE DE QUIBERON TO THE LOIRE

4. FROM POINTE DU CROISIC TO ÎLE DE NOIRMOUTIER

5. FROM ÎLE D'YEU TO POINTE DE LA COUBRE

6. FROM POINTE DE LA COUBRE TO THE SPANISH BORDER

7. ANNEXES

INDEX

CHAPTER 1

GENERAL INFORMATION

13

[diagram]

FR	EN
France	France
Golfe de Gascogne	Bay of Biscay
Espagne	Spain
I.N.	Sailing Directions

1. – General plan of the publication and coverage of small-scale charts.

01 1.1 GEOGRAPHY

01 1.1.1. LIMITS OF THE PUBLICATION

07 This publication describes the W coast of France, from Pointe de Penmarc'h to the Spanish border. The maritime limits of the publication are defined by the lines connecting the following positions:
- To the N:
- 47° 47.9' N – 20° 00' W,
- 47° 47.9' N – 4° 22.4' W (Pointe de Penmarc'h);
- To the S:
- 45° 00' N – 20° 00' W,
- 45° 00' N – 8° 00' W,
- 44° 20' N – 4° 00' W,
- 43° 23.3' N – 1° 46.2' W (dividing line of the territorial waters between France and Spain, at the open end of Baie de Fontarabie).

13 The conventional direction adopted for the description runs from the tip of Brittany to Spain.

01 1.1.2. PHYSICAL GEOGRAPHY

07 The maritime façade described in this publication covers four regions: Brittany, Pays-de-la-Loire, Poitou-Charentes and Aquitaine.

01 1.1.2.1. Brittany

07 The dominant landscape of Brittany is a low-lying plateau. This plateau is dominated by the "Monts de Bretagne", the two chains of which flank Bassin de Châteaulin. Farther E, Bassin de Rennes occupies a central depression that runs from Baie du Mont-Saint-Michel to the Loire estuary, isolating Brittany from the rest of the Massif Armoricain.

13 The deep valleys, which are subject to the influence of the tides and through which the rivers run to the sea, owe their particular configuration to the submergence of the coastline caused by a recent marine transgression. These rias cut deeply into the rocky N coast, while on the S coast they are amphora-shaped and are gradually silting up. A string of islands has been separated from the coast by the marine transgression: the islands of Chausey, Bréhat and Sept-Îles, to the N; the islands of Ouessant and Sein, to the W; and the islands of Groix and Belle-Île, to the S. Presqu'île de Quiberon is a former island now connected to the shore.

19 The N and W coasts of Brittany are relatively high and indented. The S coast is lower and less indented; it is also bordered by more extensive beaches than those on the N and W coasts.

01 1.1.2.2. Pays-de-la-Loire

07 To the W of Anjou, the Loire must cross the Massif Armoricain: the valley narrows, the features of the Loire become less pronounced and the presence of the sea, which flows back into an estuary that is largely open, starts to be felt. This "southern Armorica" is similar to Les Charentes, due to its marshlands.

13 To the S of the Loire and to the N of the Sèvre Niortaise, on both banks of the Sèvre Nantaise, the Vendée department consists of a granitic axis, the Gâtine, flanked by two schistose plateaux, Les Mauges, to the N, and Le Bocage Vendéen, to the S. A narrow strip of limestone, the Luçon plain, separates Le Bocage from Marais Poitevin, farther S.

19 The coastal area, flat and bordered by dunes, has some rocky promontories (Pointe de Saint-Gildas) between Marais Breton, to the N, and Marais Poitevin, to the S, former quaternary bays that have been filled in and have become polders. The two islands of Noirmoutier and Yeu extend offshore.

01 **1.1.2.3. Poitou-Charentes**

07 The Poitou-Charentes region is a transition area between northern France and southern France. Once the threshold of Poitou is crossed, the landscape turns into the soft hills of a rich agricultural region, with a mild climate.

13 The coast of Charentes is indented by two main forelands that extend the islands of Oléron and Ré. Between the headlands, the sea has filled in the bays and these marshy areas have been transformed into polders.

01 **1.1.2.4. Aquitaine**

07 The landscape of hills and plateaux, indented by valleys, remains very varied in the Bordeaux area. The valleys are characterised by stony and sandy terraces, gravel pits, expanses of humid alluvial ground and marshes.

13 The wide plain of the Landes department extends to the S of the Gironde. The absence of hills, the waterproof quality of the soil and the presence of a ridge of dunes along the Atlantic coast once made these lands very insalubrious and impossible to drain. It was in the XIX century that the planting of pine trees drained the area.

19 The coast, bordered by high dunes that are bound by plantations of pines and beach grass, separates a string of freshwater ponds from the ocean.

25 Bassin d'Arcachon, which is gradually silting up, is a large body of water connected to the sea.

31 At the end of the range of the Pyrenees, the mountains fall away sharply: in the Basque Country, the landscape is squat and not very mountainous, except for some sandstone outcrops. The area at the foot of the Pyrenees is indented by large valleys that are separated by strips of sand.

37 The straight and sandy coast of Landes, to the N, is succeeded by the rocky and indented coast of the Basque Country, to the S.

01 # 1.2 METEOROLOGY

01 ## 1.2.1. GENERAL INFORMATION

07 The general climate on the Channel and Atlantic coasts of France is controlled, in large part, by Atlantic disturbances (§ 1.2.6.), the trajectories of which, oriented W–E, usually pass over the British Isles, bringing with them, in winds from the W sector, mild, humid weather. A completely different weather regime becomes established when the Eurasian anticyclone extends over Western Europe in winter: cold E winds can then dominate for several weeks. At the end of this section (§ 1.2.8.) there is a summary study of the "types of weather" corresponding to the most frequent isobaric situations.

13 The average annual temperatures vary between 12°C and 15°C and increase gradually from N to S. The lowest minima can reach temperatures below –10°C (for example –12.4°C in January 1985 at Cap Ferret). The highest maxima generally range from +34°C to +42°C (for example +41.3°C at Lège-Cap-Ferret in August 2003).

19 The average annual precipitation is around 550 to 850 mm, and can reach 1550 mm near Biarritz.

25 The highest frequency of very poor visibility is observed N of the Loire. On the other hand, the frequency of poor visibility is much reduced in the S part of the Bay of Biscay.

01 ## 1.2.2. ATMOSPHERIC PRESSURE

07 The plate below shows the average isobaric situations in January and July (coming from the ERA40 analyses of the CEP, over the period 1989–2001). It shows, throughout the year, an area of low pressure near Iceland and an anticyclone in the Azores region.

13

[diagrams]

JANUARY JULY

1.2.2. – Average pressure (*from Météo-France*).

19 In winter, the Icelandic depression deepens (average value 992 hPa in the centre, at around 64° N between Iceland and the S of Greenland) and extends over the entire region lying between Labrador and Scandinavia. In addition, high pressure appears over the NE and the centre of Europe, extending to the W the powerful anticyclone that then prevails over Siberia. The average isobars therefore tend to be oriented from SW to NE over the North Atlantic, with a relatively high gradient. In summer, the Icelandic low pressure area moves W and weakens somewhat (1000 hPa in the centre).

25 The Azores anticyclone, on the other hand, is particularly well developed in summer. It then extends to the NE, towards the Bay of Biscay. In winter, it weakens and moves S. Also in winter, a ridge often connects the Azores anticyclone to the Eurasian anticyclone.

31 However, these two large centres of action sometimes disappear momentarily, and in winter, the more or less continued presence of a system of high pressure from Iceland to western Europe, and of low pressure near the Azores can be observed.

37 In addition, the general regime set out above is constantly disturbed by the passage of groups of depressions that follow on from one another in the North Atlantic and create a disturbed field, the fluctuations of which can produce, in the same place, barometric variations of 40 hPa in 24 hours.

43 The effect of these variations is also to mask the shallow depression that can be observed in good weather in these regions (1 to 2 hPa; maxima at around 10:00 and 22:00; minima at around 04:00 and 16:00, local time).

01 **1.2.3. WINDS**

01 **1.2.3.1. General information**

07 Because of the average isobaric situation over the Atlantic, shown in plate 1.2.2., the dominant winds have a tendency, in all seasons, to blow from the S and W sectors. In winter, the influence of the Icelandic low pressure area is predominant: the general wind direction is WSW. In summer, with the Azores anticyclone strengthening and extending to the NE, the dominant winds tend to veer to the NW in the Bay of Biscay.

13 This general regime is, nevertheless, subject to frequent changes in all seasons and especially in winter, with the passage of the Atlantic disturbances (§ 1.2.6.). It can also be interrupted, for shorter or longer periods, due to the movement of the nearby centres of action. The principal "types of weather" resulting from these various situations are described in section 1.2.8.

01 **1.2.3.2. Offshore area**

07 The plates below show the wind roses observed off the Breton coasts and in the Bay of Biscay, during each of the four seasons. These statistics were drawn up by Météo France based upon an international file put together for the whole of the period of 1989–2003.

13

[diagram]

FR	EN
Pourcentage par direction	Percentage by direction
nœuds	knots
Vitesses des vents	Wind speeds
Pourcentage de vents <4 nœuds (cercle central)	Percentage of winds <4 knots (central circle)

1.2.3.2.A. – Wind roses. Spring (*from Météo-France; period of observation: 1989–2003*).

19

[diagram]

FR	EN
Pourcentage par direction	Percentage by direction
nœuds	knots
Vitesses des vents	Wind speeds
Pourcentage de vents <4 nœuds (cercle central)	Percentage of winds <4 knots (central circle)

1.2.3.2.B. – Wind roses. Summer (*from Météo-France; period of observation: 1989–2003*).

25

[diagram]

FR	EN
Pourcentage par direction	Percentage by direction
nœuds	knots
Vitesses des vents	Wind speeds
Pourcentage de vents <4 nœuds (cercle central)	Percentage of winds <4 knots (central circle)

1.2.3.2.C. – Wind roses. Autumn (*from Météo-France; period of observation: 1989–2003*).

31

[diagram]

FR	EN
Pourcentage par direction	Percentage by direction
nœuds	knots
Vitesses des vents	Wind speeds
Pourcentage de vents <4 nœuds (cercle central)	Percentage of winds <4 knots (central circle)

1.2.3.2.D. – Wind roses. Winter (*from Météo-France; period of observation: 1989–2003*).

37 In this representation, the speeds have been split into speed groups: from 4 to 16 knots, from 17 to 33 knots and over 33 knots.

43 This Météo-France study shows that calm winds are infrequent throughout the year, with less than 5% in almost all areas.

49 N of 45° N, the winds blow from various directions, with a predominance of winds from the W to SW sectors, and are more marked in spring and summer. In all areas, the frequency of strong winds from the SW to NW sectors increases in autumn and winter. This phenomenon is connected to the seasonal variation in the general circulation; depressions are more frequent and follow more southerly trajectories than in summer. They remain, however, more numerous N of 47° N, which favours the succession of the currents from SW, W, then NW.

55 In some years, the situation is characterised from February to April or May by persistent high pressure over the British Isles. Of the violent winds, those from SW to W are by far the most frequent.

61 With regard to the winds from the NE sector, force 8 is rarely exceeded.

01 **1.2.3.3. Coastal area**

07 At the end of this section there are tables providing, for each month of the year, the frequency (‰) of winds observed by a certain number of stations. The vast majority of gusts come from the NW, W and SW.

13 N OF THE LOIRE. – A predominance of winds from the S and W sectors is observed in winter, whereas in summer the dominant winds come from the SW and NW sectors. Winds from the SE are by far the rarest, especially in summer.

19 In this region, gusts come from all directions, but especially between the S and NW sectors, as most gusts are associated with the depressions, the trajectories of which pass to the N. Gusts from the NE are observed especially at the end of winter and in spring.

25 In summer, in good weather, the direction of the wind is modified by daytime breezes. The latter are quite strong at Saint-Nazaire: the land breeze blows from midnight until around 08:00, the sea breeze from noon until around 19:00. The same is true for Belle-Île, despite its insular position, where the proportion of land winds (NE) decreases from 40% at 07:00 to 20% at 13:00, with the W winds increasing, in the opposite direction, from 30% to 50%.

31 The sea breeze passes through a maximum at around 16:00. In regimes of pure breeze, the speed reaches around 10 knots. The sea breeze rises almost perpendicularly to the coast (S to SW), then it turns to the right, until it heads W or NW in the evening.

37 S OF THE LOIRE. – Between the Loire and the Bidassoa, in winter, the winds are variable in the N part. In the S part, they most often blow from land: from the SE in Bordeaux, from the E in Biarritz, and from the S in Socoa. The winds are moderate in the sheltered ports of Rochefort and Bordeaux, however they can reach and exceed force 7 two or three days a month on the coast itself, and sometimes twice as often on the exposed points of the N part, such as Île d'Yeu. Most of the storms blow between the SW and NW sectors.

43 In summer, the predominant winds come from the W and NW sectors. However, land breezes are frequently observed in the early morning. Daytime breezes are, in fact, well established during this season, and, moreover, are clearly felt until April and in October. At Rochefort, in April, the frequency of winds from the W and from the NW increases from 20% at 07:00 to 40% at 13:00 (to 60% in July). At 07:00, in this region, calms are frequent when the daytime breeze heads into the dominant wind.

49 To the S, in the Socoa sector, land breezes coming from the S are frequent at 07:00. However, at 13:00, winds from the NW and W sector prevail, with their frequency reaching 65% in April and 75% in July. In fair weather, in summer, the land breeze becomes established at around noon and reaches its maximum between 16:00 and 17:00, then drops at around 19:00 in the S, a little later in the N. The land breeze rises after midnight and blows until 07:00 or 09:00 in the N, and later in the S.

55 The influence of the range of the Pyrenees starts to be felt roughly between Arcachon and the small port of Contis, to the S. In fair weather, the moderate winds from the N and NW, which blow at the mouth of the Gironde, are replaced by calms or light winds from the S when approaching the coast of Spain. In winter, this southerly regime sometimes extends as far as Arcachon. A vessel coming from the open sea with a cool sea breeze sometimes finds a calm at the entrance to Baie de Saint-Jean-de-Luz.

61 The bad weather that affects this region is generally associated with the fronts of depressions that pass to the N, and with the secondary depressions to which they give rise. These disturbances can be quite severe at the end of autumn and in winter.

01 **1.2.3.4. Special phenomenon: *galerne* or *brouillarta***

07 In summer, warming on the plateaux of the Iberian Peninsula is strong enough to cause the occurrence of thermal depressions. A phenomenon of suction of air masses occurs from the Cantabrian mountains towards the Mediterranean, which takes place level with the Basque coasts, as the mountains of the Basque Country have the lowest peaks within the entire region spanning from the Cantabrian mountains to the Pyrenees. This phenomenon is known as *galerne* or *brouillarta.* There are various types of *galerne* (*pseudo-galerne* [frontal or hybrid *galerne*], typical *galerne*). Each has its own special features and areas of action, however they all pose a dangerous threat to persons and property, due to their instantaneous nature. They most often cause gusts and the very rapid arrival of fog, reducing visibility completely.

13 Only typical *galernes* can appear from June to September, almost always in July and August, more likely in the afternoon between 15:00 and 18:00 UTC. They probably form within the strip of the first 20 M (at the border between the coastal waters and the continental slope). This formation is only possible in one of the following two situations (for both scenarios, there is no front in the synoptic analysis):

- the classic situation of a shallow low, the isobaric gradient is almost zero, there are no centres of low or high pressure;
- a southerly circulation, with related low pressure over the Iberian Peninsula or very slightly shifted to the W, and a very weak anticyclone over the south of France, the western Mediterranean or in Italy.

19 The arrival of these *galernes* can be predicted by monitoring various parameters (temperature, air humidity and sea state). Whereas the areas of pressure do not cause any significant changes, as they are of the order of 1014 hPA and do not vary either before or after the phenomenon, temperatures are high from early morning or increase

rapidly during the day, ranging from 27 to 30°C according to the season, and continue to increase in the early afternoon. When there is a difference of 8°C between the temperature of the air and the temperature of the sea water, the situation becomes conducive to a *galerne*. During this phenomenon, the temperature of the air decreases until it is the same as the temperature of the sea. Prior to the *galerne*, air humidity is around 50%. Afterwards, it climbs to 90% (which causes the occurrence of the *brouillarta* phenomenon). The sea becomes choppy for no apparent reason (the initial condition is calm seas).

25 These different observations give the impression that the breezes that should logically have risen, in view of the situation, have held themselves back so as to cause a very violent and sudden phenomenon, instead of gradually becoming stronger. Sometimes, the process unfolds until it reaches the danger limit. It is very often barely perceptible, as it has not passed the embryonic stage.

01 1.2.4. CLIMATOLOGY

01 1.2.4.1. Tables of climatological statistics

07 At the end of this section (§ 1.2.9.5.), alternating with the tables of wind observations that have already been mentioned, there are tables providing, for the same stations, monthly and annual statistics regarding barometric pressure at sea level, temperature, frost, relative humidity, fog, precipitation, storms and cloud cover.

01 1.2.4.2. Temperature

07 The average annual temperatures on the W coasts of France gradually rise, from N to S, from +12.4°C at Belle-Île, to +13.2°C at La Rochelle, then +14.4°C at Biarritz. The average annual minimum temperatures range from +9°C to +10°C, with a maximum of +10.6°C at Biarritz, with January and February being the harshest months.

13 When cold spells form with NE winds, the daily maxima sometimes range from +2°C to +4°C, the minima from –5°C to –10°C in the N part of the area. Their effect is less harsh in the S, particularly in the Biarritz area. Conversely, the weather can become abnormally hot when the S winds blow, particularly in the vicinity of the Pyrenees where temperatures of +25°C were observed in December 1985.

19 The highest average temperatures are in August (from +18.2°C at Belle-Île, to +19.1°C at Saint Sauveur, +20°C at Chassiron and +21°C at Cap Ferret). However, in terms of records, the highest temperatures are recorded during the months of June, July and August (+38.6°C at Pointe de Penmarc'h in June 1925, +34.8°C at Belle-Île in June 1976, +37.6°C at Pointe de Chémoulin in July 1983 and +40.2°C at Biarritz in August 2003).

25 The highest temperatures are recorded in the stations located at a distance from the sea. The coolest weather in summer is generally associated with W winds, and especially NW winds (with the maxima not exceeding 21°C on the coast), the hottest with S and SE winds. The sea breeze also brings, on the coast, a softening of the summer heat, except when, contrasting with an E wind, it brings a calm.

01 1.2.4.3. Humidity

07 At the mouth of the Loire, the relative humidity is, on average, high in all seasons (between 84 and 88% at Belle-Île). However, fairly dry periods (30% and below) can occur at the end of spring and in the summer, during afternoons when the E winds blow.

13 S of the Loire, the relative humidity decreases slightly (Pointe de Chassiron: 89% in December, 83% in August).

01 1.2.4.4. Cloud cover

07 The statistical tables show that the level of cloud cover is relatively low S of the Loire. In comparison, the cloud cover N of the Bay of Biscay is on average greater than 6/8 in 39% of cases (compared to 33% off cases in the S) and less than 2/8 in 11% of cases (compared to 16% of cases in the S). In

fact, the cloud cover transferred by advection by the disturbed systems is located mainly over the tip of Brittany and the S of Finistère.

01 **1.2.4.5. Precipitations**

07 The average annual level of precipitations increases gradually from N to S, until it reaches 1550 mm at Biarritz. These high figures are due to the intensity of the rain rather than its frequency. On the other hand, they concern, in almost half of all cases, the period from October to January.

13 The heavy rains in this region are often brought by winds coming from the SW and NW sectors. They also take place in conjunction with storms, which are particularly violent during the summer months.

19 At Bordeaux and on the coast of Landes, the SW winds are sometimes accompanied by drizzle.

01 **1.2.5. VISIBILITY, FOG**

07 Off the coasts of the Bay of Biscay, the observations of mist and fog recorded by vessels are especially frequent at the end of spring and in summer. From November to February, they are much rarer. However, the rain associated with the disturbances often cause foggy weather during the winter months.

13 The statistics regarding foggy days yield very different figures, depending on the regions. At certain exposed maritime stations, such as Saint-Sauveur (Île-d'Yeu), fog is most frequently observed in winter, particularly in the vicinity of the warm fronts of the depressions that cross this region, and associated with winds from the S sector. In sheltered locations (particularly in estuaries), the figures are higher, due to the frequency of radiation fog that forms during the night, in clear and calm weather, particularly in winter, and especially in the vicinity of industrial settlements that are covered by smoke.

19 This fog generally clears away during the afternoon and, in summer, shortly after sunrise. In winter, the fog can last all day, however. In particular, when the S winds become established following a cold spell.

25 Mist, which often accompanies the SW and W winds, also causes a discernible reduction in visibility over the coast.

31 The following observations are from the local port services:

- at Nantes and Saint-Nazaire, winds from the E sector generally bring with them more or less misty weather (visibility reduced by 2 to 4 M[1]);
- at La Rochelle, periods including several foggy days without bright spots are rare, however fog banks sometimes persist for several hours in a sound, or over the roadstead, or over the port structures. They roll in unexpectedly from the open sea to land, by day or night, in fair weather;
- in the Bayonne sector, fog is very rare, although winds from the E sometimes cause a misty horizon in the morning, which hides the coast.

01 **1.2.6. DISTURBANCES**

07 The extent and intensity of the depressions, which vary with the seasons, are generally more developed in winter, when they can generate gusts up to a distance of more than 600 M from their centre. The same is true for the speed with which they move, which is generally between 10 and 40 knots, but can reach 60 knots.

13 The depressions that cross the British Isles and the English Channel also bring unsettled weather in the Bay of Biscay, especially in autumn and winter; during these seasons, the depressions are particularly intense and extensive. At this time, violent winds blow in the N part of the Bay of Biscay, heading in a direction between SW and NW, whereas secondary cold fronts often develop in the S part, bringing strong gusts accompanied by rain over the coast.

[1] Translator's note: the source text is unclear here. We think it means "reduced by 2 to 4 M" but could also mean "reduced to 2 to 4 M".

01 **1.2.7. SEA STATE**

07 Due to its large size and regular bathymetry, the Bay of Biscay does not generally pose any particular problems.

13 However, a phenomenon of wave expansion has been observed along the continental slope, the origin of which is not well known. It could be caused by strong internal waves, or by a current heading in the opposite direction of wave propagation, or even by cross swells.

19 Furthermore, the chaotic appearance of certain pure swells, in particular those from the NW sector, has been noted at the inner end of the bay. This phenomenon, which is supposedly due to reflection on the French and Spanish coasts, could constitute a hindrance to lightweight vessels and, in particular, leisure craft.

25 Furthermore, return to the port passages can be made difficult by refraction phenomena (change in the direction, height and duration of the swell according to the bathymetry), for certain types of offshore sea states.

31 Tables with data on the swell in the Bay of Biscay can be found in section 1.3.6.

01 **1.2.8. TYPES OF WEATHER**

07 Classifying meteorological situations into types of weather is a subjective approach. The resulting classifications can vary from one publication to the next. Those that are presented in the following sections are based on the distinction between anticyclonic conditions (undisturbed weather) and disturbed weather, characterised by the direction in which masses of air move at ground level.

13 In anticyclonic conditions, the observer is located near the centre of an anticyclone, pressure is high, the weather is stable and there is no significant precipitation. Depending on the position of the centre of the anticyclone, winds can come from any direction, but statistically, in France, these conditions are mostly associated with a lack of wind or winds from the E sector.

19 Disturbed weather is characterised by a succession, at a higher or lower rate, of areas of clouds and bad weather, each associated with a front (disturbances, § 1.2.6.), which circulate in a flow generated by a depression and an anticyclone. Depending on the position of the centres of action with regard to the observer, the disturbed flow can be from the S, W, N or E (more rare) sector. However, if the centre of the depression crosses the region in question, the disturbed weather cannot be described as coming from any direction.

01 **1.2.8.1. Disturbed weather from the SW**

07 The centres of action of disturbed weather from the SW (plate 1.2.8.1.) consist of:

- an anticyclonic area centred to the S of the Azores and extending to the SW of the European continent;
- an often complex low pressure area over the NE of the Atlantic between the S tip of Greenland, Iceland and the British Isles.

13

[diagram]

2 November 2003 at 12:00 UTC

1.2.8.1. – Type of disturbed weather from the SW (*from Météo-France*).

19 The disturbances spread towards the E at higher or lower latitudes depending on the respective positions of the centres of action controlling them. They generally move at speeds of between 22 and 43 knots, though in winter they sometimes reach 55 to 72 knots when the thermal contrast of the masses of air in conflict is particularly marked. They generally pass at a rate of around one every 36 to 48 hours. This periodicity can fall to 24 hours in the very fast regimes of winter.

25 Depending on the latitude at which the base of the disturbance current is located, the latter reaches mainland Europe level with Ireland, Brittany or the Bay of Biscay. Winds from the SE to SW at the front of the disturbance turn to the SW sector as it passes over, then between W and NW at the back. As the disturbance approaches, drops in pressure of 0.5 to 2 hPa per hour can be observed, reaching, in the case of violent storms, up to 3 to 5 hPa per hour.

31 In these regimes, especially in winter, visibility is mediocre or poor in the S part of the disturbance current, within the masses of hot air that feed it.

37 With a SW flow, the relief of the Iberian Peninsula plays an important role. It protects the inner end of the Bay of Biscay and strengthens the winds at Cap Finisterre. The strong winds often extend from Galicia to S Brittany, whereas the S Gascony area benefits from the weak winds from the W sector.

43 Plate 1.2.8.1. shows the situation of disturbed weather from the SW, observed on 2 November 2003 at 12:00 UTC:

49 An anticyclone at 1020 hPa centred over Morocco protects the inner end of the Bay of Biscay. The wind from the SW becomes moderate to fairly strong over the coastline of Brittany. Gusts of 45 knots have been observed at Île d'Yeu.

55 A small depression sometimes forms at the tip of the warm sector. It moves very rapidly with the disturbance, circulating around the low pressure area. This was the general situation in the night from 15 to 16 October 1987. A small depression deepened over an undulation of the front towards the Azores. Circulating at 60 knots, it passed over Cap Finisterre then over Brittany, with a pressure of 948 hPa at the centre. During several hours, the winds strengthened to 50–80 knots in Brittany and 30–50 knots in Aquitaine. The waves reached 8 to 12 m offshore. The damage was considerable.

01 **1.2.8.2. Disturbed weather from the NW or from the N**

07 Disturbed weather from the NW or from the N (plate 1.2.8.2.) generally follows on from the previous type of disturbed weather. The subtropical anticyclone has developed a more or less marked ridge towards Iceland, and the depression has moved towards Scandinavia.

13

[diagram]

14 December 2003 at 12:00 UTC

1.2.8.2. – Type of disturbed weather from the NW (*from Météo-France*).

19 The disturbances that circulate in a flow from NW to N do not generally have a warm front. They comprise a cold front, often associated with secondary cold fronts that cause the wind to turn from W to NW or from NW to N.

25 The cold fronts are active and, due to the high contrast (maximum in winter and at the start of spring) between the sea surface temperature and the temperature of the air originating from the Arctic, the systems bring with them numerous rain, snow or hail showers, as well as storms.

31 Winds from the NW sector are highly irregular and blow in gusts that are sometimes very violent during squalls. Visibility is often very poor during a squall, but, between the showers, there can be excellent sunny spells and exceptional visibility. The sea is moderate to rough along the coasts and strong swells can sometimes reach the inner end of the Bay of Biscay even though the area of low pressure extends quite far W.

37 Plate 1.2.8.2. shows the situation observed on 14 December 2003 at 12:00 UTC. A depression at 979 hPa over Norway and an anticyclone at 1030 hPa to the W of the British Isles generate a flow from the NW over the English Channel and the near Atlantic.

43 Behind the cold front the wind from the NW is strong and irregular (gusts of 28 knots at Belle-Île with rough sea).

01 **1.2.8.3. Disturbed weather from the S**

07 When an anticyclone extends from central Europe to the Mediterranean, it brings masses of warm air from North Africa to France. When it meets the moist air brought by the Atlantic disturbances, the warm air generates violent storms.

13

[diagram]

14 December 2002 at 12:00 UTC

1.2.8.3. – Type of disturbed weather from the S (*from Météo-France*).

19 The winds are generally weak and diurnal breezes often dominate, annulling or noticeably modifying the direction of the S or SE winds caused by the pressure field. Visibility is often poor on the coasts, particularly in winter, though it is better out to sea.

25 The sea is smooth, but swells in the process of calming that are arriving from the open sea can occur in the entirety of the Bay of Biscay.

31 In the summer, this type of situation causes storms, which are sometimes violent, over the SW of France.

37 Plate 1.2.8.3. shows this type of weather observed on Saturday 14 December 2002 at 12:00 UTC. A depression at 993 hPa centred to the SW of the tip of Brittany. An anticyclone at 1040 hPa over the W of Russia. Average wind speed of 38 knots at Belle-Île with a rough sea.

01 **1.2.8.4. Type of weather from NE to E**

07 NE regimes are characterised by the presence of an anticyclonic centre of action situated either to the W or NW of the British Isles, or over Scandinavia, but extended by a ridge heading W of the Bay of Biscay. On the other hand, relatively low pressures and sometimes even a well organised depression can still be observed over the Mediterranean. These regimes, which often follow on from a N to NW regime, can either be disturbed or undisturbed.

13

[diagram]

1 November 2004 at 18:00 UTC

1.2.8.4. – Undisturbed flow from the E (*from Météo-France*).

19 In either case, instability can be observed, in winter and at the beginning of spring, over the sea and over the coasts with rain or snow showers. This instability, caused by the high thermal contrast between the air originating from the continent and the sea, is even stronger when the course of the continental air masses has been above the sea long enough to take on a large amount of moisture.

25 The near gales from the NE and E sectors are enough to cause high seas at the SW end of the Bay of Biscay.

31 Plate 1.2.8.4. shows the undisturbed flow from the E observed on 1 November 2004 at 18:00 UTC. An anticyclone at 1025 hPa centred over the E of Scotland generates a slight flow from the E over the English Channel and the near Atlantic.

37 The winds from the E to NE blow at a speed of between 15 and 20 knots over the near Atlantic. There are no precipitations, although there are mists over the coasts of Aquitaine.

01 **1.2.8.5. Depression crossing the Bay of Biscay**

07 This situation is fairly frequent in winter. When the Azores anticyclone is located very far S, the depressions circulate to 50° N and can descend to the S of 40° N.

13 The winds, often strong, change direction significantly as the depression passes. From the S (or even SE) sector at the front, they turn to the N sector at the back. This is the type of situation that causes the most violent storms as a depression deepens quickly.

19

[diagram]

14 December 2002 at 06:00 UTC

1.2.8.5. – Depression crossing the Bay of Biscay (*from Météo-France*).

25 The plate shows the situation observed on 14 December 2002 at 06:00 UTC, with a depression crossing the Bay of Biscay. A depression at 998 hPa passes along the bay. This type of situation, which is more frequent in winter than in summer, causes winds that are very variable, both in terms of time and space.

01 **1.2.8.6. Anticyclonic conditions**

07 In these conditions, if the high pressure centre is near the region in question, the prevailing winds over this region are variable and weak. There are marked sea breeze (arising at around noon and halting at sunset) and land breeze (arising at around midnight and halting after sunrise) phenomena, particularly if the sky is clear.

13 In winter, the anticyclonic conditions favour the appearance, on land, of radiation fog; this can be carried out to sea.

19

[diagram]

13 November 2004 at 18:00 UTC

1.2.8.6. – Anticyclonic conditions (*from Météo-France*).

25 The plate shows the anticyclonic situation observed on 13 November 2004 at 18:00 UTC. The disturbances circulate to the N of the anticyclone. The sky is clear. The winds are variable, weak in Brittany, from the E sector, and weak over the coast of Aquitaine.

01 1.2.9. METEOROLOGICAL INFORMATION AND SIGNALS

01 1.2.9.1. Meteorological safety information

07 Reference publications: *Météorologie maritime* [Maritime meteorology] or *Guide du Navigateur* [French Mariner's Handbook], *volume 3*.

13 The area covered by these Sailing Directions lies within the METAREA II area of the Global Maritime Distress and Safety System (GMDSS). VHF and the NAVTEX and SafetyNET systems are the means used in the GMDSS to broadcast meteorological safety information (safety bulletins and associated notices).

19 The internet address weather.gmdss.org allows METAREA bulletins and notices to be consulted. However, as the internet is not one of the official means used in the GMDSS, the information broadcast on this site may not be up to date.

25 The bulletins and notices are also broadcast by large public radio broadcasting stations (France-Inter, France Info and BBC) and by coastal radio telephone radio stations.

31 METEOROLOGICAL DOMAINS. – For each domain, defined by its distance from the coast, there is a corresponding type of information bulletin and one or more means of broadcasting:

- high sea (more than 200 M from the coasts): SSB on decametric waves and INMARSAT SafetyNET (METAREA II area bulletins);
- open sea (up to 200 M from the coasts) [table 1.2.9.1.A.]: SSB on hectometric waves and international (518 kHz) and national (490 kHz) NAVTEX from the Corsen and La Coruña (Spain) stations.

37

[diagram]

1.2.9.1.A. – Delimitation of "open sea" meteorological areas.

43 BROADCASTING OF REGULAR COASTAL BULLETINS. – The *centres régionaux opérationnels de surveillance et de sauvetage* [regional operational monitoring and rescue centres] (CROSS) [§ 1.4.7.1.] regularly broadcast coastal meteorological bulletins. The coastal bulletins comprise: coastal SMB, 24-hour forecasts, latest trends and semaphore observations.

49 BROADCASTING OF OCCASIONAL BULLETINS. – The CROSS also broadcast special meteorological bulletins (SMB) [coastal SMB on VHF, open sea SMB on MHF SSB], transmitted as soon as they are received and repeated regularly as indicated below during the period of validity of the bulletin:

- coastal SMB, every hour from H+03 for all transmitters concerned, one after the other;
- open sea SMB, broadcast by CROSS Gris-Nez and CROSS Corsen every two hours (at H+03, odd hours for CROSS Gris-Nez and even hours for CROSS Corsen).

55

CROSS	Transmitters	Local broadcast times	VHF channels
Étel			
	Penmarc'h	0703, 1533, 1903	80
	Groix	0715, 1545, 1915	80
	Belle-Île	0733, 1603, 1933	80
	Saint-Nazaire	0745, 1615, 1945	80
	Yeu	0803, 1633, 2003	80
	Les Sables-d'olonne	0815, 1645, 2015	80
	Chassiron	0703, 1533, 1903	79
	Soulac	0715, 1545, 1915	79
	Cap Ferret	0733, 1603, 1933	79
	Contis	0745, 1615, 1945	79
	Biarritz	0803, 1633, 2003	79

1.2.9.1.B. – Broadcasting of coastal meteorological bulletins.

61 Note: experiments are being carried out with the broadcasting of meteorological bulletins in cycles from the Étel and Chassiron transmitters on channel 63.

67 The *Guide Marine* [Marine Guide] of Météo-France provides details on the broadcasting of marine meteorological information regarding the coasts of metropolitan France (§ 1.2.9.4.).

01 **1.2.9.2. SHOM radio signal publications**

07 The following SHOM publications deal with the broadcasting of meteorological information transmitted within or outside of the framework of the GMDSS:

– Radiocommunications *maritimes [Maritime Radio Communications], volume 4*: organisation and operation of the GMDSS. Broadcasting of meteorological safety information by NAVTEX and SafetyNET/INMARSAT;
– *Stations radiométéorologiques [Radio Meteorological Stations], volume 1*: list of radio stations (including NAVTEX stations) broadcasting maritime weather bulletins, storm warnings and gale warnings. Updated by means of weekly groups of Notices to Mariners, this publication specifies, for each station, the call sign, the frequencies, powers and classes of transmission, the times of the bulletins and the areas they cover;
– *Répertoire des radiosignaux [List of Radio Signals]*: published each year and aimed at small coasters, fishing and leisure vessels, this provides, amongst other information, the list of stations transmitting, by means of radio telephone (VHF and SSB), NAVTEX or fax, the same information as the previous publication.

01 **1.2.9.3. International visual storm warning signals**

07 See the publication *Signalisation maritime [Maritime Signals]* or the *Guide du Navigateur [French Mariner's Handbook], volume 3*.

13 An optical signalling system for strong winds has been established at the exit of certain ports or stretches of water. It consists of a continuous or intermittent quick white light, with a range of 5 M and only operating by day, in accordance with the mode described in table 1.2.9.3.

19

Light situation	Light characteristics	Meaning
Extinguished	–	Local winds weaker than force 6 or no forecasts of winds of force 6 or higher over the next six hours
Lit – 1st rhythm	Intermittent quick Period of 8 s (4 s flashing)	Winds of force 6 or higher forecast over the next six hours
Lit – 2nd rhythm	Continuous quick	Winds of force 6 or higher forecast over the next three hours

1.2.9.3. – Light signals used for reporting strong winds.

01 **1.2.9.4. Météo-France marine services**

07 Météo-France offers a range of services available on its internet site marine.meteofrance.com. Due to the constant improvements made to the broadcasting of this information, it is best to refer to the *Guide marine [Marine Guide]*, updated each year and available on this site, or to the publication *Stations radiométéorologiques [Radio meteorological stations], volume 1*.

13 INTERNET SERVICES. – These services are either free or paid for.

19 Free services, not including telecommunications costs:
– all real-time safety bulletins (coastal, open sea, high sea and SMB bulletins);
– numerous charts, updated every 6 hours and forecast for a period of 24 hours (charts of fronts and isobars, wind charts, wave height and direction charts, swell charts);
– some "navimail" service provisions (safety bulletins and satellite images). Navimail provided when meteorological information is requested via email.

25 With regard to paid-for access, navimail allows meteorological forecasts to be received in the form of digital data (wind, pressure, waves, sea surface temperature).

31 MINITEL. – Marine information is accessed by means of number 3615, code METEO, keyword MER: shore, coastal and open sea bulletins; latest semaphore observations.

37 TELEPHONE ANSWERING MACHINES. – The numbering system is identical in all departments:
– 32.50: weather portal allowing access to all types of forecast; interactive choice using the telephone keypad;
– + 33 (0)8 92 68 08 77: "open sea" bulletins; this service is accessible by VHF radio telephone;
– + 33 (0)8 92 68 08 followed by the department number: marine meteorological forecasts for this department (SMB, shore, coastal and open sea bulletins).

01 **1.2.9.5. Climatological data**

07 The tables below show the climatological data and wind observations for certain semaphores from Pointe de Penmarc'h to Socoa.

13

MONTH		Average temperatures in °C			Extreme temperatures		Frost	Relative humidity %	Fog	Precipitation			Storms	Cloud cover	
	P sea	Ave T°	Min T°	Max T°	Min abs T°	Max abs T°	No. of frosty days	Ave hum	No. of foggy days	Cumul	No. of days	Max 24	No. of stormy days	No. of clear days	No. of cloudy days
January	1017.6	8.0	6.1	9.9	-9.2	14.4	2.3	86.0	1.4	80.3	14.0	32.4	0.3		
February	1017.6	7.8	5.8	9.7	-7.0	17.0	2.7	86.0	2.9	67.8	11.6	59.4	0.5		
March	1017.7	8.9	6.8	11.0	-6.0	26.4	0.6	84.0	2.4	52.2	10.7	39.5	0.3		
April	1015.2	10.2	7.6	12.8	-0.8	26.4	0.0	82.0	2.3	45.9	9.7	44.9	0.6		
May	1015.5	13.0	10.4	15.5	2.0	38.6	0.0	82.0	2.3	49.2	8.6	32.0	0.9		
June	1017.9	15.2	12.7	17.7	5.6	38.2	0.0	84.0	2.9	29.3	6.3	34.3	0.9		
July	1018.6	17.1	14.7	19.5	7.4	36.0	0.0	86.0	4.3	26.9	5.1	50.5	1.1		
August	1018.0	17.4	14.9	19.9	6.4	34.0	0.0	85.0		28.4	5.8	31.8			
September	1017.3	15.9	13.5	18.3	1.8	35.0	0.0	85.0	3.1	53.6	8.6	54.0	0.8		
October	1015.6	13.5	11.4	15.6	-1.0	25.8	0.0	85.0		68.4	11.3	52.4			
November	1016.5	10.7	8.7	12.8	-5.1	18.2	0.3	83.0	2.2	71.4	12.8	43.4	0.5		
December	1016.4	9.1	7.2	11.0	-6.2	17.0	1.4	86.0	1.8	83.9	14.0	49.0	0.5		
Year	1017.0	12.3	10.0	14.5	-9.2	38.6	7.3	84.0		657.3	118.5	59.4			

1.2.9.5.A. – Climatological data: Pointe de Penmarc'h (semaphore) [47° 47.9' N – 4° 22.4' W]. Altitude 17 m.

19

MONTH	Calms	1 to 10 knots								11 to 21 knots								22 to 33 knots								34 knots and over							
		N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW
January	5	45	70	109	20	14	22	20	19	40	13	76	36	53	78	73	43	8	.	5	13	31	64	55	32	1	0	0	1	9	18	19	7
February	7	56	80	94	41	20	22	20	21	62	18	67	42	57	63	70	54	10	.	10	12	22	40	47	29	.	0	0	.	4	12	12	5
March	11	60	73	84	39	34	33	51	46	51	18	52	38	53	71	84	72	11	1	5	4	11	25	37	25	2	.	0	.	1	4	3	2
April	10	64	74	72	32	29	35	43	38	76	49	50	40	50	56	78	78	16	1	.	6	18	15	25	31	3	0	0	.	1	2	2	5
May	7	79	80	78	37	32	31	46	68	75	32	52	29	44	63	80	103	4	.	1	3	11	14	16	10	.	0	.	.	.	.	.	.
June	12	92	65	55	36	32	42	72	85	72	18	26	13	34	59	99	130	5	.	.	1	6	14	20	11	.	0	0	0	.	0	.	.
July	8	91	53	58	28	34	53	81	111	68	11	20	9	27	64	106	148	1	0	0	.	3	6	10	6	0	0	0	.	.	.	.	0
August	10	108	53	74	48	46	52	90	99	58	10	21	19	26	55	88	115	.	0	0	.	4	8	12	2	0	0	0	0	.	.	.	0
September	9	93	80	103	50	32	37	58	63	59	16	35	26	38	59	78	86	7	1	1	4	12	16	17	11	.	0	.	1	1	2	.	.
October	9	53	71	125	36	25	24	27	31	51	14	65	42	52	65	66	54	13	.	4	7	26	42	46	30	.	0	.	.	4	4	8	3
November	8	57	77	73	18	18	23	24	26	59	14	62	39	56	79	80	56	11	1	12	18	37	41	47	37	2	0	.	2	5	4	8	7
December	5	50	80	96	23	16	19	22	20	34	19	91	39	50	71	67	48	14	.	10	10	33	43	58	39	3	.	.	3	9	11	10	9
Year	8	71	71	85	34	28	33	46	52	59	19	51	31	45	65	81	82	8	.	4	7	18	27	33	22	1	.	.	.	3	5	5	3

1.2.9.5.B. – Wind at Pointe de Penmarc'h: frequency (‰) of wind force by direction.

25

MONTH		Average temperatures in °C			Extreme temperatures		Frost	Relative humidity %	Fog	Precipitation			Storms	Cloud cover	
	P sea	Ave T°	Min T°	Max T°	Min abs T°	Max abs T°	No. of frosty days	Ave hum	No. of foggy days	Cumul	No. of days	Max 24	No. of stormy days	No. of clear days	No. of cloudy days
January	1019.8	7.3	5.4	9.2	-9.4	15.4	3.1	87.0	2.6	93.6	14.1	49.2	0.3	1.4	17.4
February	1017.4	7.4	5.3	9.5	-8.0	16.6	2.4	86.0	3.2	75.4	11.6	34.4	0.4	2.3	14.0
March	1017.7	8.8	6.5	11.1	-6.2	22.8	0.3	85.0	2.2	60.9	11.2	39.8	0.3	2.6	13.8
April	1014.8	10.2	7.5	13.0	-1.0	25.8	0.0	82.0	2.2	56.6	9.7	46.5	0.0	2.8	11.5
May	1015.0	13.2	10.4	16.1	0.4	28.4	0.0	84.0	1.4	61.2	9.8	47.0	0.9	2.5	11.7
June	1017.9	15.6	12.7	18.5	5.8	35.6	0.0	83.0	2.0	40.4	7.0	52.4	0.7	3.9	10.0
July	1018.7	17.8	14.8	20.8	7.8	35.0	0.0	83.0	2.3	40.2	6.3	55.4	1.0	5.1	8.3
August	1018.2	18.2	15.1	21.2	8.4	35.2	0.0	83.0	1.9	35.2	6.2	86.1	0.8	3.8	9.4
September	1018.4	16.5	13.6	19.3	7.6	31.0	0.0	83.0	2.5	62.9	9.2	51.0	0.6	3.8	9.8
October	1016.0	13.6	11.3	15.9	1.8	25.0	0.0	86.0	2.5	79.4	12.0	66.2	0.3	2.7	12.2
November	1016.8	10.4	8.4	12.4	-2.4	19.0	0.3	86.0	2.0	82.8	12.5	57.1	0.2	1.2	15.3
December	1017.1	8.5	6.6	10.3	-6.0	16.0	1.3	88.0	2.7	98.8	13.9	41.9	0.3	1.7	16.9
Year	1017.3	12.3	9.8	14.8	-9.4	35.6	7.6	85.0	27.5	787.4	123.4	86.1	5.7	33.9	150.2

1.2.9.5.C. – Climatological data: Beg Melen (semaphore) [47° 38.3' N – 3° 27.2' W]. Altitude 45 m.

31

MONTH	Calms	1 to 10 knots								11 to 21 knots								22 to 33 knots								34 knots and over							
		N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW
January	13	24	46	83	29	27	28	37	23	39	71	86	47	48	89	88	51	9	12	3	2	12	48	48	21	.	.	0	.	2	6	6	2
February	15	27	53	94	50	33	34	32	29	43	72	62	33	47	83	95	50	9	7	4	.	7	34	50	20	.	.	0	0	.	3	9	4
March	21	33	57	75	52	39	46	75	39	38	62	53	41	48	83	87	59	10	5	.	.	4	19	30	15	.	.	0	0	.	2	1	.
April	16	34	57	70	37	39	53	66	34	53	83	51	31	44	68	100	52	18	26	2	.	5	13	24	20	0	.	.	0	0	1	1	.
May	15	42	63	94	31	39	49	88	48	58	91	56	22	38	65	98	47	5	19	.	.	3	8	14	4	.	.	0	0	.	.	.	0
June	16	42	64	72	25	29	53	144	70	49	57	30	13	19	62	155	61	1	5	.	.	1	7	15	8	0	0	0	0	.	.	.	.
July	12	48	62	81	19	28	64	152	80	36	34	32	7	20	59	163	75	1	2	.	0	.	4	15	4	0	0	0	0	0	0	.	0
August	24	49	85	87	31	39	70	154	87	39	36	18	9	16	52	126	57	2	.	0	.	3	4	11	1	0	0	0	0	0	.	.	0
September	19	47	76	109	35	33	51	105	56	51	54	55	19	30	60	97	55	3	4	.	1	5	13	13	6	0	0	0	0	.	2	.	.
October	15	30	57	111	47	32	38	53	32	39	52	64	46	46	68	85	57	9	9	2	2	10	33	38	15	.	0	0	0	.	3	5	.
November	14	38	45	80	34	25	30	39	36	53	53	78	37	49	82	95	64	12	11	3	3	11	27	45	25	1	.	0	0	.	2	7	3
December	8	30	48	76	37	24	29	31	31	31	81	106	35	47	80	92	54	7	12	7	2	13	36	47	21	1	.	0	.	2	5	4	3
Year	16	37	60	86	35	32	45	82	47	44	62	58	28	37	71	107	57	7	9	2	1	6	20	29	13	.	.	.	.	.	2	3	1

1.2.9.5.D. – Wind at Beg Melen: frequency (‰) of wind force by direction.

37

MONTH		Average temperatures in °C			Extreme temperatures		Frost	Relative humidity %	Fog	Precipitation			Storms	Cloud cover	
	P sea	Ave T°	Min T°	Max T°	Min abs T°	Max abs T°	No. of frosty days	Ave hum	No. of foggy days	Cumul	No. of days	Max 24	No. of stormy days	No. of clear days	No. of cloudy days
January	1019.1	7.6	5.7	9.5	-10.0	14.5	2.5	88.0	2.6	80.8	13.5	51.8	0.2	1.5	17.0
February	1018.1	7.5	5.5	9.5	-8.4	14.6	2.4	88.0	2.9	66.6	10.7	43.2	0.2	2.4	13.8
March	1017.8	8.8	6.5	11.1	-4.8	20.2	0.5	85.0	2.6	50.6	10.3	37.2	0.1	3.0	13.0
April	1015.1	10.2	7.4	13.0	-1.6	25.0	0.0	84.0	2.3	46.6	9.0	34.1	0.3	3.6	10.3
May	1015.6	13.2	10.4	16.0	3.0	28.2	0.0	86.0	2.0	53.4	9.3	33.5	0.5	3.3	10.7
June	1018.0	15.6	12.7	18.6	5.4	34.8	0.0	85.0	1.8	33.9	6.8	30.4	0.5	4.5	9.1
July	1018.7	17.8	14.8	20.9	8.2	33.8	0.0	85.0	1.9	35.9	5.8	54.2	1.4	6.2	7.5
August	1017.9	18.2	15.0	21.3	7.4	33.4	0.0	85.0	1.4	32.0	5.8	34.0	1.0	4.3	7.4
September	1017.5	16.5	13.6	19.3	6.8	29.9	0.0	85.0	2.3	61.2	8.5	69.1	0.5	4.5	9.1
October	1016.1	13.8	11.5	16.0	2.0	24.8	0.0	86.0	2.4	69.7	11.5	81.0	0.3	3.1	11.5
November	1017.2	10.6	8.5	12.7	-3.4	19.2	0.3	85.0	1.5	76.8	13.2	33.7	0.3	1.3	14.4
December	1017.1	8.8	6.9	10.7	-6.2	16.0	1.2	88.0	2.2	84.2	13.7	53.7	0.3	1.6	16.4
Year	1017.6	12.4	9.9	14.9	-10.0	34.8	6.9	86.0	25.7	691.7	118.0	81.0	5.7	39.2	140.3

1.2.9.5.E. – Climatological data: Pointe du Talut (semaphore) [47° 17.7' N – 3° 13.1' W]. Altitude 37 m.

43

MONTH	Calms	1 to 10 knots								11 to 21 knots								22 to 33 knots								34 knots and over							
		N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW
January	5	43	53	74	34	17	19	35	28	31	48	107	35	43	82	116	57	3	3	7	4	13	51	61	6	0	0	0	.	3	11	8	0
February	5	46	59	76	57	26	24	48	36	43	63	93	35	33	67	120	51	4	2	2	2	7	32	49	8	.	0	0	.	2	4	8	.
March	13	51	59	72	47	28	45	78	58	40	71	64	31	31	65	121	61	4	2	3	2	4	16	28	5	0	0	0	0	.	1	.	0
April	7	54	52	55	43	25	40	77	51	59	105	68	20	33	58	119	63	4	11	5	2	6	13	18	11	0	0	0	.	.	1	.	.
May	7	66	55	50	39	24	50	87	72	63	134	65	13	23	57	106	56	1	5	5	1	2	10	9	.	0	0	0	0	0	.	0	0
June	9	76	48	40	34	22	42	135	113	53	93	39	8	11	45	138	67	.	1	.	.	2	8	12	4	0	0	0	0	.	.	0	0
July	7	88	50	39	27	16	52	152	120	54	83	34	2	7	42	129	81	.	1	.	.	1	4	9	1	0	0	0	0	0	0	.	0
August	12	83	59	53	42	28	54	156	135	39	77	30	4	9	37	108	61	.	.	.	0	.	5	6	.	0	0	0	0	.	.	0	0
September	10	78	70	70	47	21	44	109	74	45	88	65	11	16	55	106	53	.	.	.	1	6	12	12	2	0	0	0	.	.	2	.	.
October	9	58	67	85	44	25	37	47	37	33	64	78	26	40	72	116	51	1	4	3	4	11	34	40	5	0	0	0	.	.	3	3	0
November	9	59	60	69	30	19	30	45	32	43	49	86	39	47	73	123	60	4	3	6	7	13	33	48	8	0	0	0	.	.	2	2	.
December	6	47	58	69	32	17	29	38	30	28	53	128	30	39	76	107	53	5	4	7	2	18	42	51	13	.	0	0	.	2	7	5	1
Year	8	63	57	62	40	22	39	84	66	44	77	71	21	28	61	117	60	2	3	3	2	7	22	29	5	.	0	0	.	.	3	2	.

1.2.9.5.F. – Wind at Pointe du Talut: frequency (‰) of wind force by direction.

49

MONTH		Average temperatures in °C			Extreme temperatures		Frost	Relative humidity %	Fog	Precipitation			Storms	Cloud cover	
	P sea	Ave T°	Min T°	Max T°	Min abs T°	Max abs T°	No. of frosty days	Ave hum	No. of foggy days	Cumul	No. of days	Max 24	No. of stormy days	No. of clear days	No. of cloudy days
January	1019.2	7.3	5.1	9.5	-9.8	15.4	3.4	88.0	3.1	81.4	13.1	35.2	0.4	1.8	17.0
February	1018.4	7.4	5.0	9.9	-9.4	16.2	3.0	87.0	4.2	70.1	11.3	43.4	0.3	2.9	12.7
March	1018.5	9.1	6.3	11.9	-4.8	21.2	0.5	84.0	2.6	53.9	10.3	38.6	0.1	3.9	11.8
April	1014.9	10.7	7.6	13.8	0.2	24.6	0.0	83.0	1.9	54.8	9.5	43.8	0.5	4.3	10.3
May	1015.3	13.9	10.7	17.1	2.8	30.6	0.0	84.0	1.4	56.4	9.7	49.0	1.1	3.7	1.0
June	1018.0	16.5	13.1	19.8	5.4	35.2	0.0	82.0	1.6	39.5	7.0	51.9	0.9	5.1	8.2
July	1018.4	18.8	15.2	22.4	9.1	34.4	0.0	81.0	1.4	37.5	6.5	67.1	2.0	7.5	6.8
August	1018.0	19.1	15.4	22.8	10.0	35.1	0.0	82.0	1.2	32.4	5.8	94.1	2.1	4.9	7.0
September	1018.3	17.2	13.8	20.6	6.8	32.9	0.0	83.0	1.2	62.6	8.8	46.5	1.0	5.1	8.4
October	1016.4	14.1	11.4	16.8	1.8	26.0	0.0	86.0	1.4	81.6	11.6	60.2	0.7	3.2	11.5
November	1017.5	10.5	8.1	12.9	-3.5	19.0	0.9	86.0	1.8	84.2	12.7	57.0	0.5	1.9	13.6
December	1021.5	8.4	6.2	10.6	-7.9	16.8	2.0	88.0	2.7	86.8	13.5	30.5	0.6	2.1	15.0
Year	1017.7	12.8	9.8	15.7	-9.8	35.2	9.8	84.0	24.4	741.2	119.8	94.1	10.0	46.3	133.3

1.2.9.5.G. – Climatological data: Saint-Sauveur (semaphore) [46° 41.6' N – 2° 19.8' W]. Altitude 32 m.

55

MONTH	Calms	1 to 10 knots								11 to 21 knots								22 to 33 knots								34 knots and over							
		N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW
January	10	40	76	79	46	42	43	45	39	29	63	64	43	52	81	74	51	4	2	1	4	17	39	31	9	0	0	.	.	.	8	8	.
February	10	47	82	101	74	46	38	54	55	30	46	56	29	40	72	91	51	2	2	1	2	6	20	30	7	.	0	.	.	.	2	4	.
March	10	73	76	93	55	43	55	66	76	38	56	51	25	36	63	78	61	2	.	1	.	3	14	18	4	0	0	0	.	.	.	1	.
April	11	79	78	77	41	38	44	68	76	43	72	56	22	33	62	89	73	.	2	.	.	6	11	11	7	0	0	0	0	.	.	.	.
May	9	102	98	64	39	41	60	81	93	42	68	45	17	23	55	79	62	.	.	.	.	2	11	7	.	.	0	0	0	.	.	.	.
June	8	117	89	56	22	28	52	120	133	37	48	29	7	10	45	101	82	.	0	.	.	1	7	7	.	0	0	0	0	.	0	0	0
July	7	138	87	48	21	24	64	124	147	38	35	17	2	10	44	91	88	0	0	0	0	.	4	8	.	0	0	0	0	0	0	0	0
August	7	132	89	56	29	26	64	125	169	34	38	9	5	9	37	81	80	.	0		0	.	5	3	2	0		0	0	0	.	0	0
September	13	104	116	77	47	38	58	93	97	30	56	23	12	22	48	79	60	0	1	.	.	5	9	7	.	0	0	.	.	1	2	1	0
October	10	61	87	96	54	46	31	56	57	21	53	44	34	48	74	96	55	3	1	.	3	7	28	24	5	0	0	.	.	2	3	2	0
November	18	45	69	80	52	45	40	47	52	32	54	60	56	49	88	89	43	3	2	2	5	10	29	19	6	0	0	0	0	.	4	1	0
December	10	37	71	87	56	46	35	42	40	21	57	84	45	58	78	86	48	1	.	.	4	11	35	28	8	.	0	.	.	2	7	2	.
Year	10	81	85	76	45	39	49	77	86	33	54	45	25	32	62	86	63	1	1	.	2	6	18	16	4	.	.	.	.	.	2	2	.

1.2.9.5.H. – Wind at Saint-Sauveur: frequency (‰) of wind force by direction.

61

MONTH		Average temperatures in °C			Extreme temperatures		Frost	Relative humidity %	Fog	Precipitation			Storms	Cloud cover	
	P sea	Ave T°	Min T°	Max T°	Min abs T°	Max abs T°	No. of frosty days	Ave hum	No. of foggy days	Cumul	No. of days	Max 24	No. of stormy days	No. of clear days	No. of cloudy days
January	1021.3	7.1	5.0	9.1	-10.0	17.2	2.9	89.0	3.9	73.3	12.4	38.6	0.3	2.4	16.4
February	1018.4	7.6	5.3	9.9	-9.2	20.4	2.2	87.0	2.8	63.0	11.0	37.7	0.3	3.7	12.1
March	1018.2	9.5	7.0	12.0	-4.0	23.4	0.3	85.0	1.4	45.7	9.6	38.8	0.2	4.7	11.4
April	1015.1	11.3	8.5	14.1	-0.8	26.0	0.0	84.0	1.0	56.7	10.4	28.6	0.5	4.6	9.6
May	1015.3	14.6	11.8	17.5	4.6	31.2	0.0	86.0	0.8	56.0	9.6	54.9	1.6	4.0	9.7
June	1018.1	17.4	14.4	20.3	7.2	35.6	0.0	85.0	1.0	42.5	7.0	58.6	1.8	5.7	7.3
July	1018.7	19.6	16.6	22.6	10.2	35.0	0.0	84.0	0.9	37.7	5.5	52.6	1.7	8.8	5.6
August	1018.4	20.0	17.0	23.0	10.0	35.9	0.0	83.0	0.6	36.5	5.6	141.5	1.5	6.5	5.0
September	1018.8	18.0	15.0	20.9	7.8	32.8	0.0	84.0	0.9	63.3	8.1	67.0	1.3	5.7	7.8
October	1017.4	14.6	12.0	17.2	1.0	28.8	0.0	86.0	2.0	76.2	11.3	56.0	0.9	4.6	10.0
November	1018.1	10.4	8.1	12.7	-2.0	21.2	0.7	87.0	2.6	86.0	12.4	59.4	0.4	2.7	12.8
December	1018.8	8.0	5.9	10.1	-8.8	18.6	2.1	89.0	4.0	81.0	12.8	41.3	0.4	3.1	15.0
Year	1018.0	13.2	10.6	15.8	-10.0	35.9	8.2	86.0	21.8	717.9	115.6	141.5	11.0	56.4	122.7

1.2.9.5.I. – Climatological data: Pointe de Chassiron (semaphore) [46° 02.8' N – 1° 24.6' W]. Altitude 11 m.

67

MONTH	Calms	1 to 10 knots								11 to 21 knots								22 to 33 knots								34 knots and over							
		N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW
January	17	22	61	100	103	51	32	27	23	41	78	37	40	72	74	59	49	5	9	1	2	18	36	23	13	.	0	0	.	2	3	2	.
February	17	39	74	106	75	56	45	44	40	43	82	30	23	59	67	67	42	9	5	.	.	8	18	24	13	0	0	0	0	.	3	7	2
March	20	51	74	89	61	54	59	54	66	50	81	19	21	50	65	72	53	5	5	.	.	5	17	15	10	0	0	0	0	.	1	1	0
April	22	52	73	77	45	38	46	61	67	57	83	22	18	37	73	82	68	7	10	1	.	8	16	15	16	.	.	0	0	0	.	.	.
May	28	70	94	95	40	39	56	75	90	41	71	20	8	27	64	76	78	4	4	.	.	3	8	4	2	0	0	0	0	0	0	0	0
June	23	81	90	74	17	23	49	123	133	35	48	7	4	18	51	94	112	.	1	0	.	.	5	7	3	0	0	0	0	0	0	.	0
July	21	84	96	58	15	20	53	137	143	38	35	5	1	13	49	81	131	.	.	0	0	1	8	8	2	0	0	0	0	0	1	.	0
August	33	104	99	67	20	33	56	124	156	35	32	8	1	14	31	78	98	.	.	.	0	.	3	3	2	0	0	0	0	0	.	0	0
September	19	65	100	96	50	44	57	88	88	48	75	19	9	33	46	59	68	1	2	.	.	4	12	9	3	0	0	0	0	1	2	.	0
October	16	40	64	116	102	48	40	35	29	38	62	31	29	54	77	79	46	6	7	2	2	8	28	22	13	0	0	0	.	1	3	.	.
November	17	35	56	110	117	50	33	33	28	41	57	41	43	50	74	72	52	10	7	4	1	7	21	26	10	.	0	0	0	.	2	2	.
December	18	29	52	109	106	51	38	29	22	37	80	66	35	66	72	61	38	8	6	2	2	11	25	20	12	.	0	0	0	1	2	2	1
Year	21	56	78	91	62	42	47	69	74	42	65	25	19	41	62	73	70	5	5	.	.	6	16	15	8	.	.	0	.	.	2	1	.

1.2.9.5.J. – Wind at Pointe de Chassiron: frequency (‰) of wind force by direction.

73

MONTH		Average temperatures in °C			Extreme temperatures		Frost	Relative humidity %	Fog	Precipitation			Storms	Cloud cover	
	P sea	Ave T°	Min T°	Max T°	Min abs T°	Max abs T°	No. of frosty days	Ave hum	No. of foggy days	Cumul	No. of days	Max 24	No. of stormy days	No. of clear days	No. of cloudy days
January	1020.0	7.6	4.7	10.4	-12.4	18.8	4.2	88.0	2.5	82.8	12.9	35.4	0.5	2.8	15.1
February	1019.0	8.5	5.2	11.8	-10.0	24.2	3.2	85.0	2.4	71.2	11.5	39.8	0.5	3.8	12.2
March	1018.7	10.2	6.5	13.9	-7.4	26.4	0.8	81.0	1.5	61.7	11.3	37.8	0.5	5.0	10.7
April	1014.9	12.1	8.2	15.9	-0.2	31.0	0.0	80.0	1.6	67.1	11.1	46.7	1.0	4.2	9.7
May	1015.4	15.6	11.7	19.5	4.2	34.6	0.0	79.0	1.0	66.3	10.2	50.4	2.5	3.4	9.8
June	1018.3	18.2	14.4	22.0	6.8	40.0	0.0	80.0	1.2	56.2	7.8	68.9	2.7	4.9	7.8
July	1018.4	20.8	16.8	24.7	9.4	40.4	0.0	78.0	0.7	40.6	6.6	36.6	3.5	8.0	5.9
August	1017.7	21.0	17.0	25.0	10.0	41.3	0.0	79.0	1.0	49.8	7.4	52.8	3.2	6.7	6.0
September	1017.7	18.6	14.5	22.7	5.0	38.8	0.0	80.0	1.7	74.4	9.2	65.5	2.1	6.9	7.3
October	1017.0	15.2	11.7	18.8	0.5	29.4	0.0	84.0	1.6	80.9	11.7	38.8	1.7	5.2	8.8
November	1018.4	10.7	7.6	13.9	-3.2	23.0	1.3	87.0	2.7	95.8	12.7	49.2	0.9	3.2	12.6
December	1018.7	8.5	5.7	11.3	-9.2	20.6	2.8	88.0	2.8	93.1	12.9	50.8	0.5	3.3	14.8
Year	1017.9	13.9	10.3	17.5	-12.4	41.3	12.4	82.0	20.3	839.9	125.4	68.9	17.5	57.5	120.7

1.2.9.5.K. – Climatological data: Cap Ferret (semaphore) [44° 37.9' N – 1° 08.6' W]. Altitude 9 m.

79

MONTH	Calms	1 to 10 knots								11 to 21 knots								22 to 33 knots								34 knots and over							
		N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW
January	19	46	120	156	136	91	30	24	20	18	23	19	25	42	43	58	34	1	.	.	.	9	22	37	13	.	0	0	0	.	3	5	3
February	16	65	141	134	108	68	50	42	38	17	27	24	19	25	41	66	34	3	0	0	0	1	10	41	14	.	0	0	0	.	2	10	3
March	18	84	144	114	75	49	53	67	71	30	34	18	17	23	36	63	57	3	.	0	0	1	7	26	10	0	0	0	0	0	0	2	.
April	16	80	122	90	63	40	47	66	74	39	31	22	13	21	43	92	77	2	.	0	.	2	8	25	20	0	0	0	0	0	0	2	1
May	18	99	120	99	51	44	61	96	108	44	17	11	10	12	36	82	72	.	0	0	0	.	4	8	4	0	0	0	0	0	.	.	0
June	21	105	122	69	27	25	62	126	150	39	10	10	3	8	30	86	83	.	0	0	0	0	2	17	3	0	0	0	0	0	0	.	0
July	21	112	135	68	18	24	52	127	162	43	11	3	1	5	32	85	81	.	0	0	.	.	3	14	.	0	0	0	0	0	0	0	0
August	27	131	160	86	42	29	46	106	152	33	7	4	2	4	22	64	73	0	0	0	0	.	1	6	2	0	0	0	0	0	0	.	.
September	24	92	176	133	57	46	45	78	100	22	19	7	8	14	27	57	55	1	0	0	.	3	7	15	5	0	0	0	0	.	2	2	.
October	19	54	123	156	132	60	40	51	50	10	13	16	23	28	46	73	35	.	0	.	.	4	16	33	8	0	0	0	0	1	2	3	.
November	16	43	102	161	156	65	35	34	25	15	23	23	28	31	53	74	36	.	0	.	.	2	15	38	14	0	0	0	0		2	5	.
December	13	35	120	179	148	81	32	23	15	12	28	24	29	39	55	59	29	1	.	.	.	6	21	32	12	0	0	0	.	1	2	4	.
Year	19	79	132	120	85	52	46	70	81	27	20	15	15	21	39	72	56	1	.	.	.	3	10	24	9	.	0	0	.	.	1	3	.

1.2.9.5.L. – Wind at Cap Ferret: frequency (‰) of wind force by direction.

85

MONTH		Average temperatures in °C			Extreme temperatures		Frost	Relative humidity %	Fog	Precipitation			Storms	Cloud cover	
	P sea	Ave T°	Min T°	Max T°	Min abs T°	Max abs T°	No. of frosty days	Ave hum	No. of foggy days	Cumul	No. of days	Max 24	No. of stormy days	No. of clear days	No. of cloudy days
January	1022.7	8.9	5.4	12.5	-10.8	24.6	4.1	76.0		148.6	13.6	81.3			
February	1023.7	9.9	6.2	13.6	-12.0	27.3	2.3	76.0		131.3	13.0	51.8			
March	1021.7	11.0	6.9	15.0	-3.4	29.8	1.0	78.0		128.5	12.8	71.7			
April	1016.4	12.1	8.2	16.0	-1.0	30.2	0.0	79.0		142.5	13.9	72.1			
May	1016.6	15.2	11.4	19.1	2.6	35.4	0.0	81.0		126.0	13.0	72.4			
June	1019.2	17.8	14.1	21.4	6.8	39.0	0.0	83.0		89.5	10.6	84.3			
July	1019.2	20.1	16.3	23.8	6.4	39.2	0.0	84.0		84.2	8.8	150.3			
August	1017.9	20.7	16.8	24.5	7.2	40.2	0.0	83.0		99.1	9.9	105.6			
September	1016.6	19.0	14.7	23.2	4.4	35.6	0.0	81.0		122.6	10.0	163.6			
October	1017.5	16.2	12.2	20.1	1.0	33.2	0.0	80.0		153.7	12.1	120.9			
November	1017.9	12.1	8.4	15.8	-5.6	26.4	1.3	78.0		173.6	13.1	74.2			
December	1019.0	10.4	6.9	13.8	-5.9	26.0	2.4	76.0		146.3	12.6	76.0			
Year	1019.0	14.4	10.6	18.2	-12.0	40.2	11.0	79.0		1545.9	143.4	163.6			

1.2.9.5.M. – Climatological data: Socoa (semaphore) [44° 37.9' N – 1° 08.6' W]. Altitude 9 m.

91

MONTH	Calms	1 to 10 knots								11 to 21 knots								22 to 33 knots								34 knots and over							
		N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW
January	45	28	38	92	126	191	113	43	18	10	4	9	16	102	51	43	24	2	.	.	3	16	4	9	9	.	.	0	0	.	.	1	2
February	38	45	42	81	100	167	118	70	41	16	9	9	12	69	39	69	19	3	.	0	.	6	4	22	9	.	0	0	0	.	1	6	1
March	45	73	59	71	84	123	114	99	72	24	11	9	9	56	27	64	25	2	.	0	1	6	2	15	8	0	0	0	0	0	0	.	.
April	27	64	49	50	55	115	134	110	77	27	9	3	6	35	28	95	63	3	.	0	.	3	.	25	17	0	0	0	0	.	0	3	.
May	35	75	63	65	68	98	107	133	104	18	11	14	4	21	19	94	45	3	0	0	0	3	2	11	5	0	0	0	0	0	0	1	0
June	26	116	51	35	38	81	137	143	140	16	8	8	2	8	12	114	45	.	0	0	0	2	.	12	5	0	0	0	0	0	0	0	0
July	22	122	55	39	46	101	148	144	130	15	6	7	.	2	15	94	38	.	0	.	0	.	.	11	3	0	0	0	0	0	0	0	0
August	23	117	58	56	60	115	158	122	132	15	9	8	2	6	19	57	35	.	0	0	0	0	.	5	3	0	0	0	0	0	0	0	0
September	31	78	51	70	79	165	160	78	73	19	11	9	3	29	34	58	26	.	0	0	0	3	2	10	6	.	0	0	0	0	.	1	.
October	26	43	41	89	100	195	152	67	41	13	4	8	7	65	48	49	21	1	.	0	0	4	2	10	12	0	0	0	0	.	0	.	.
November	31	26	31	89	113	205	133	49	22	13	5	6	8	74	55	58	29	4	2	0	.	6	4	16	16	0	0	0	0	.	.	2	.
December	36	17	32	105	124	190	124	37	12	11	3	11	13	104	59	46	20	3	.	.	1	13	2	17	15	.	0	.	0	0	.	2	2
Year	32	67	47	71	83	146	134	91	71	16	7	9	7	48	34	70	32	2	.	.	.	5	2	14	9	.	.	.	0	.	.	1	.

1.2.9.5.N. – Wind at Socoa: frequency (‰) of wind force by direction.

01 # 1.3. OCEANOGRAPHY

01 ## 1.3.1. LIMITS OF SEAS AND BATHYMETRY

07 The coasts described in this publication are bathed by the waters of the Bay of Biscay. A precise description of the limits of this bay and of the neighbouring waters is provided in International Hydrographic Office *Special Publication no. 23*.

13 Plate 1.3.1.A. provides a schematic representation of these limits as defined in the draft (1986) of the fourth edition of this publication.

19

[diagram]

FR	EN
Canal de Bristol	Bristol Channel
Mer du Nord	North Sea
La Manche	English Channel
Mer Celtique	Celtic Sea
Océan Atlantique	Atlantic Ocean
Golfe de Gascogne	Bay of Biscay

1.3.1.A. – Limits of the seas.

25 The edge of the continental shelf of the Bay of Biscay is noticeably oriented to NW–SE. The width of the shelf decreases regularly from 135 M, at latitude 48° N, to 1 M, level with the underwater canyon of Gouf de Capbreton.

31 Numerous islands or islets border the S coasts of Brittany and the coasts of Vendée.

37 Farther S, the only sizeable shoal is Plateau de Rochebonne, located at a latitude of 46° 10' N, between longitudes 2° 20' and 2° 30' W, where the depths vary between 4 and 30 m.

43 Plate 1.3.1.B. provides some indications regarding the general bathymetry off the N and W coasts of France.

49

[diagram]

1.3.1.B. – General bathymetry.

01 **1.3.2. NATURE OF THE SEABED**

07 Plate 1.3.2. provides a schematic representation of the distribution of sediments on the seabed.

13

[diagram]

FR	EN
Légende	Key
Roche	Rock
Sables fins	Fine sand
Cailloutis	Pebbles
Vases	Mud
Graviers	Gravel
Domaine terrestre	Land
Sables	Sand

1.3.2. – Nature of the seabed.

01 **1.3.3. GENERAL CURRENTS**

07 To the E of longitude 46° W, the Gulf Stream ceases to be a well-defined current. Weakened, it opens out to the S of the Grand Banks of Newfoundland. The N branch of the remaining current, the North Atlantic Drift, is attributed essentially to winds from the W, which are dominant in this area.

13 The general currents in the English Channel, the S part of the North Sea and the Bay of Biscay belong to the North Atlantic system of the Gulf Stream. One branch of the Gulf Stream heads directly into the English Channel, running ENE, and from there into the North Sea.

19 Another branch, situated to the S of the previous one and heading E, turns SE to the S of the Armorican peninsula, opens out into the Bay of Biscay, along the coasts of France and, after running along the Spanish coasts and heading W, it rejoins the Portuguese current off the Iberian Peninsula.

25 In the North Atlantic, N of latitude 40° N, an E drift is normal, but because the actual instantaneous current is caused by prior or current winds that can blow from any direction, drifts can occur in all directions.

31 The plates below provide various information regarding the direction and speed of the surface currents off the coasts of France for the months of February, May, August and November, considered to be representative of winter, spring, summer and autumn respectively.

37

[diagrams]

FR	EN
Février	February
Mai	May
Courant d'une stabilité supérieure à 25%	Current with a stability of greater than 25%
Courant le plus probable	Most likely current
Les vitesses sont exprimées en milles par jour	Speeds are expressed in miles per day

1.3.3.A. – General currents. February and May.

43

[diagrams]

FR	EN
Août	August
Novembre	November
Courant d'une stabilité supérieure à 25%	Current with a stability of greater than 25%
Courant le plus probable	Most likely current
Les vitesses sont exprimées en milles par jour	Speeds are expressed in miles per day

1.3.3.B. – General currents. August and November.

01 **1.3.3.1. Currents in the S Celtic Sea**

07 In the S part of the Celtic Sea, the current heads SE and even S during autumn, winter and spring, then clearly SE during summer.

13 When strong W winds have prevailed over the N coast of Spain for a long time, there may be a current flowing out of the N part of the Bay of Biscay. This current, known as Rennell's current, does not often appear to extend over a large area, but it can reach a speed of 1 to 1.5 knots and its possible existence requires great care to be taken when making landfall in foggy weather on Île d'Ouessant, or on the Isles of Scilly. This current heads diagonally across the entrance to the English Channel, but becomes weak in summer.

01 **1.3.3.2. Currents in the Bay of Biscay**

07 In the Bay of Biscay, the currents are weak and particularly susceptible to the influence of the prevailing winds or of winds that have blown before.

13 In winter, the current coming from the Atlantic runs parallel to the N coast of Spain, heading E. E of longitude 5° W, it heads NE. Farther N, it heads NW, parallel to the general direction of the French coast between the Gironde and Pointe de Penmarc'h.

19 In spring, in the E part of the Bay of Biscay, the current heads SE, parallel to the general direction of the coast, as far as the latitude of the Gironde. Farther S, the current heads SW, then W, running parallel to the N coast of Spain. In the centre of the bay, the SE current turns sharply WSW, to the W of longitude 5° W.

25 In summer, the currents are weak in the Bay of Biscay. They head SE from Pointe de Penmarc'h to Île d'Yeu, then SW and finally W along the N coast of Spain.

31 In autumn, there is a current heading E, then NE, along the Spanish coast. In the central part of the bay, the current heading E turns between longitudes 5° and 4° W. It turns towards NE, N, NW, then finally W.

37 Throughout the year, the speed of the currents, in calm weather, is slow and remains at around 2 to 3 M per day.

01 **1.3.4. TIDE AND TIDAL CURRENTS**

01 **1.3.4.1. General information regarding the tide**

07 The tide that can be observed on the coasts of France is caused by the gravitational action of the moon and the sun on Atlantic water masses. Off the continental shelf, the ocean is subject to the regime of the North Atlantic tides, which are essentially semi-diurnal and characterised by an amphidromic point (a point at which the tidal range is permanently zero) situated to the E of Newfoundland (50° N – 38° W). The tidal wave turns anti-clockwise around this point and heads S to N in the approaches to western Europe.

13 Because of the decrease in its celerity (proportional to the square root of the depth), this wave is highly refracted as it passes over the continental slope, and it heads roughly perpendicular to the isobaths. As it progresses across the shelf, the average tidal range increases from 2.4 m near the slope to 3 m at Île de Groix, for example.

19 Plate 1.3.4.1. shows the co-tidal and co-range lines in the Bay of Biscay:
– the co-range lines connect points at which the average tidal range at spring tides has the same value. This value, expressed in metres, is shown on each of the corresponding lines;
– the co-tidal lines connect points at which the average high water occurs at the same time. The number of hours indicated for each line shows the average interval between the time of local high water and the time the moon passes over the Greenwich meridian. This interval (expressed in hours and minutes) and the value of the average tidal range at spring tides are also mentioned for some ports that can therefore serve as a reference in the use of these data.

25

[diagram]

FR	EN
Lignes cotidales	Co-tidal lines
Lignes d'isomarnage maximum	Maximum co-range lines

1.3.4.1. – Co-tidal lines and co-range lines in the Bay of Biscay.

37 Each day, the tide on the coasts of France has two high waters and two low waters following on from each other with an average interval of 6 hours 13 minutes.

37 Although they are clearly semi-diurnal in nature, the tides on the coasts of France often present minor diurnal inequalities that manifest themselves in differences in height (0.1 to 0.2 m) at the high or low waters of the same day.

43 The characteristic values of the tides in the main ports are provided in the tide tables for the ports of France.

49 In a single place, the tidal range varies according to the phases of the moon. The delay of the spring tide at the full or new moon (conjunction) or of the neap tide at the first or last quarter (quadrature), known as the age of the tide, is around 36 hours on the coasts of the Atlantic.

55 TIDE PREDICTIONS. – The *Tide Tables*, produced by the SHOM in two volumes (*volume 1: Ports of France; volume 2: Overseas ports*), provide the times and the heights of high and low water for a certain number of reference ports and the corrections to be made to this information in order to obtain the corresponding elements for associated ports.

61 The SHOM has marketed the tide software SHOMAR, autonomous software for tide predictions. It enables users to predict the tide in 1080 sites across the world, 150 of which are in metropolitan France and 42 on the coasts of French overseas territories.

67 7 types of calculations are available:
- day tide: times and heights of high and low water during the day accompanied by tidal curve;
- two "tide table" format types showing the times and heights of high and low water and their coefficients;
- calculation of the water height at a given time;
- graphical representation of the tide: tidal curve;
- calculation of the times for which a water height is expected;
- calculation of the water height at a given interval of time (60, 30, 15 minutes).

01 **1.3.4.2. Tides in the Bay of Biscay**

07 The tidal wave coming from the SW arrives roughly simultaneously at all points of the French coast of the Bay of Biscay. High water takes place roughly simultaneously at all points of the coast located between Penmarc'h and the Spanish border.

13 The tidal ranges increase from S to N, at the same time as the great depths move away from the coast.

19 On the Atlantic coast, from La Baule to Pertuis d'Antioche, a phenomenon of double high water occurs during the lowest neap tides. This consists of a long high water slack during which the water level only varies very slowly, which means that only a rough indication of the time of high water can be given. This vagueness has no consequence for navigation as during a time slot of 3 hours before and after high water, the variation in the sea level is less than 20 cm at neaps.

01 **1.3.4.3. General information regarding tidal currents**

07 Horizontal oscillations of water particles under the effect of the tide are known as tidal currents. At a given point, they have roughly the same speed from the surface to the seabed. When the wave is purely progressive (theoretical model), the speed of the currents that accompany the tidal wave varies between two maxima in opposite directions.

13 On the crest of the tidal wave, the currents head in the direction of wave propagation (flood) and in the trough of the wave, they head in the opposite direction (ebb). They become nil at mid-rise and mid-fall.

19 Near the coasts the currents depend greatly on the topography. In the roadsteads and at the mouths of rivers they are connected to the filling or emptying of the bays.

25 If the tidal wave is stationary, the flood begins immediately after low water and lasts until high water. The ebb accompanies the falling tide. The farther away the coast is, the more delayed the onset of the current is compared to high or low water.

31 The SHOM publishes a series of publications called "tidal current atlases", providing, hour by hour, the tidal currents on the French Atlantic coasts. The tip of Brittany and the Bay of Biscay are covered by the following atlases:
- *Courants de marée et hauteurs d'eau – Golfe de Gascogne [Tidal currents and water heights – Bay of Biscay]*;

- *Courants de marée de la côte Sud de Bretagne, d'Audierne au Croisic [Tidal currents of the S coast of Brittany, from Audierne to Le Croisic];*
- *Courants de marée de la côte Ouest de France, de Saint-Nazaire à Royan [Tidal currents of the W coast of France, from Saint-Nazaire to Royan].*

01 **1.3.4.4. Tidal currents in the Bay of Biscay**

07 In the Bay of Biscay, the flood current generally heads E (between NE and SE) and the ebb current heads W (between SW and NW).

13 By passing from one direction to the other, the current always heads clockwise, except in Baie de Quiberon. The slack of flood and the slack of ebb, which take place 3 hours after high water and 3 hours after low water, become less delayed compared to high water and low water approaching land.

19 In the approaches to the large estuaries, the tidal currents can reach 1 to 2.5 knots.

01 **1.3.5. TEMPERATURE, SALINITY AND SURFACE DENSITY**

01 **1.3.5.1. Surface temperature**

07 The plates below show the surface isotherms for the months of February, May, August and November, considered to be representative of winter, spring, summer and autumn. The temperatures are expressed in degrees Celsius.

13

[diagrams]

FR	EN
Février	February
Mai	May

1.3.5.1.A. – Surface isotherms. February and May (*source of data: LEVITUS 1998*).

19

[diagrams]

FR	EN
Août	August
Novembre	November

1.3.5.1.B. – Surface isotherms. August and November (*source of data: LEVITUS 1998*).

01 **1.3.5.2. Surface salinity**

07 The plates below show the surface isohalines for the months of February, May, August and November. The salinities are expressed in grammes per kilogramme of sea water.

13

[diagrams]

FR	EN
Février	February
Mai	May

1.3.5.2.A. – Surface salinity. February and May.

19

[diagrams]

FR	EN
Août	August
Novembre	November

1.3.5.2.B. – Surface salinity. August and November.

01 **1.3.5.3. Surface density**

07 The plates below show the surface isopycnics for the months of February, May, August and November. The densities are expressed in kilogrammes per cubic decimetre.

13

[diagrams]

FR	EN
Février	February
Mai	May

1.3.5.3.A. – Density of surface seawater. February and May.

19

[diagrams]

FR	EN
Août	August
Novembre	November

1.3.5.3.B. – Density of surface seawater. August and November.

01 **1.3.6. SEA STATE AND SWELL**
07 See also section 1.2.7.

01 **1.3.6.1 Sea state**
07 The Bay of Biscay is characterised by the persistence of swells from W and NW, with which waves caused by winds coming from these directions are almost always associated.
13 The tables below, drawn up based upon Météo-France statistical data, show the monthly and annual frequencies (‰) of the different sea states.
19

Sea state (code S)	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
0	0	.	.	0	.	0	0	.	0	.	0	.	.
1	2	2	21	5	27	20	40	53	24	19	3	8	19
2	239	264	370	342	517	507	555	638	505	333	203	228	394
3	352	360	390	405	346	354	337	237	300	305	369	338	340
4	225	233	169	184	103	105	62	67	146	245	317	232	173
5	139	109	48	55	7	15	6	4	20	90	101	141	60
6	38	32	2	9	.	0	0	.	5	8	7	49	12
7	4	.	0	0	0	0	0	0	0	0	0	4	.
8	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0
Note. – Points (.) indicate a frequency not zero but less than 1‰.													

1.3.6.1.A. – Sea state (frequency ‰) at Pointe de Penmarc'h (*from Météo-France*).

25

Sea state (code S)	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
0	10	0	.	2	.	.	.	3	2	0	0	.	2
1	6	25	35	32	113	82	88	130	84	39	17	10	57
2	321	330	457	375	441	488	503	501	473	351	306	246	403
3	326	296	329	357	316	306	303	270	274	320	330	356	315
4	197	208	139	184	112	102	94	90	135	204	251	241	161
5	106	113	37	37	14	19	11	6	23	73	75	100	49
6	31	26	3	13	3	3	.	.	8	14	20	43	13
7	2	1	0	0	0	0	0	0	1	0	2	3	.
8	0	.	0	0	0	0	0	0	.	0	0	0	.
9	0	0	0	0	0	0	0	0	0	0	0	.	.

Note. – Points (.) indicate a frequency not zero but less than 1‰.

1.3.6.1.B. – Sea state (frequency ‰) at Beg Melen (*from Météo-France*).

31

Sea state (code S)	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
0	0	0	2	.	.	0	0	1	0	.	.	0	.
1	.	4	5	6	20	21	21	31	10	4	.	.	10
2	352	370	484	428	562	544	601	674	526	361	284	270	456
3	325	313	341	354	307	300	302	217	322	328	358	358	319
4	191	202	134	170	98	117	67	65	115	217	266	239	156
5	88	89	33	41	12	16	9	12	19	82	81	114	49
6	39	18	.	2	0	.	0	0	5	7	8	17	8
7	5	3	.	0	0	.	0	0	2	0	2	2	1
8	0	.	0	0	0	0	0	0	0	.	0	.	.
9	0	0	0	.	0	0	.	0	.	0	.	0	.

Note. – Points (.) indicate a frequency not zero but less than 1‰.

1.3.6.1.C. – Sea state (frequency ‰) at Pointe du Talut (*from Météo-France*).

37

Sea state (code S)	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
0	3	.	.	.	.	0	.	.	.	.	0	.	.
1	.	2	5	4	16	15	11	14	12	4	4	2	8
2	181	249	276	255	401	396	441	503	350	221	166	163	301
3	420	394	460	418	405	414	429	373	413	372	402	392	408
4	234	223	205	237	153	148	98	92	159	283	314	275	201
5	124	107	48	81	23	28	19	17	52	106	98	139	70
6	37	23	4	4	.	.	1	0	11	13	16	24	11
7	1	2	0	.	0	0	0	0	1	.	0	3	.
8	0	0	0	0	0	0	0	0	0	0	0	.	.
9	0	0	0	0	0	0	0	0	0	0	0	0	0

Note. – Points (.) indicate a frequency not zero but less than 1‰.

1.3.6.1.D. – Sea state (frequency ‰) at Saint-Sauveur (*from Météo-France*).

43

Sea state (code S)	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
0	3	0	0	0	0	0	0	0	.	0	0	0	.
1	1	1	3	4	9	9	19	13	3	.	2	2	6
2	181	167	261	243	424	416	458	490	417	229	222	203	311
3	484	498	520	450	418	439	418	401	410	505	435	457	452
4	219	232	177	225	128	109	91	90	118	199	269	238	174
5	97	83	39	67	20	27	12	7	42	55	61	87	49
6	15	18	0	11	.	0	1	0	8	11	9	12	7
7	0	.	0	0	0	.	0	0	2	0	2	0	.
8	0	0	0	0	.	0	0	0	0	0	0	0	.
9	.	0	0	0	0	0	0	0	0	0	0	0	.

Note. – Points (.) indicate a frequency not zero but less than 1‰.

1.3.6.1.E. – Sea state (frequency ‰) at Pointe de Chassiron (*from Météo-France*).

49

Sea state (code S)	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
0	2	0	.	0	.	.	.	.	.	.	0	.	.
1	7	2	7	6	16	12	13	23	9	4	15	13	11
2	449	446	568	443	663	629	637	659	595	499	378	397	532
3	281	263	282	353	238	265	275	258	278	296	334	309	286
4	155	154	113	140	70	79	69	51	82	143	173	199	118
5	88	102	29	46	10	16	6	9	26	45	82	69	43
6	17	29	0	11	3	0	0	.	6	12	11	9	8
7	2	6	.	1	0	.	0	0	1	0	7	2	2
8	0	0	.	0	0	0	0	0	0	0	0	2	.
9	0	0	0	0	0	0	0	0	.	.	0	0	.

Note. – Points (.) indicate a frequency not zero but less than 1‰.

1.3.6.1.F. – Sea state (frequency ‰) at Cap Ferret (*from Météo-France*).

55

Sea state (code S)	Jan.	Feb.	March	April	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.	Year
0	.	0	.	0	0	.	.	.	0	.	0	0	.
1	2	.	1	.	7	.	6	5	4	1	.	.	2
2	330	335	407	365	452	425	528	505	499	406	356	390	418
3	367	368	403	368	421	455	378	417	351	352	350	327	379
4	205	200	139	210	105	107	74	65	103	172	214	211	150
5	85	84	43	48	14	11	14	6	40	59	66	54	43
6	12	11	6	7	.	.	0	1	2	10	14	15	7
7	0	1	0	1	0	0	0	0	.	0	0	2	.
8	0	.	.	0	0	0	0	0	0	0	0	.	.
9	0	0	0	0	0	0	0	0	0	0	0	0	0

Note. – Points (.) indicate a frequency not zero but less than 1‰.

1.3.6.1.G. – Sea state (frequency ‰) at Socoa (*from Météo-France*).

01 **1.3.6.2. Swell**

07 In the Bay of Biscay, 40% of the swells are small (0–2 m), 47% are moderate (2–4 m) and 13% have a wave height of greater than 4 m.

13 The plates below show the swell roses for each season and for the open sea areas, divided into four height classes (from 0 to 1 m; from 1 to 3 m; from 3 to 6 m; 6 m and over), the frequencies of which (‰) are shown on the directions of origin.

19

[diagram]

FR	EN
Pourcentage par direction	Percentage by direction
Hauteurs de houles	Heights of swells
Pourcentage de houles <1 m (cercle central)	Percentage of swells <1 m (central circle)

1.3.6.2.A. – Swell roses. Spring (*Météo-France. Period of observation 1989–2003*).

25

[diagram]

FR	EN
Pourcentage par direction	Percentage by direction
Hauteurs de houles	Heights of swells
Pourcentage de houles <1 m (cercle central)	Percentage of swells <1 m (central circle)

1.3.6.2.B. – Swell roses. Summer (*Météo-France. Period of observation 1989–2003*).

31

[diagram]

FR	EN
Pourcentage par direction	Percentage by direction
Hauteurs de houles	Heights of swells
Pourcentage de houles <1 m (cercle central)	Percentage of swells <1 m (central circle)

1.3.6.2.C. – Swell roses. Autumn (*Météo-France. Period of observation 1989–2003*).

37

[diagram]

FR	EN
Pourcentage par direction	Percentage by direction
Hauteurs de houles	Heights of swells
Pourcentage de houles <1 m (cercle central)	Percentage of swells <1 m (central circle)

1.3.6.2.D. – Swell roses. Winter (*Météo-France. Period of observation 1989–2003*).

01 1.4. COUNTRY – FRANCE

01 1.4.1. GOVERNMENT AND POPULATION

07 France is a republic governed by the Constitution of 1958, revised in 2008. The President of the Republic is elected for five years by universal suffrage.

13 The Parliament comprises the National Assembly (577 members elected for 5 years by universal suffrage) and the Senate (343 Senators elected for 9 years by limited suffrage, renewable by thirds every 3 years).

19 National policy is directed by the President of the Republic with the assistance of the Prime Minister, the head of the government.

01 1.4.1.1. Administrative organisation

07 Metropolitan France is divided into 95 departments plus the territory of Belfort, which has the status of a department.

13 The assembly of ministers is represented by a prefect in each of these departments. Departments are divided into arrondissements, each of which is headed by a sub-prefect or administrative councillor. Cantons and communes make up the last territorial subdivision.

19 Executive power in the field of departmental affairs is held by the president of the general council, which is formed by elected representatives of the cantons.

25 The departments are grouped into 22 regions, the affairs of which are handled by the relevant regional council. Regional councillors are elected by universal suffrage.

31 A regional prefect represents the government in the region.

37 The regions and departments the coastline of which is described in this publication are listed, from N to S, as far as the Spanish border:

43 BRITTANY REGION (RENNES):
- Finistère (administrative centre Quimper) as far as Anse du Pouldu, around 15 km W of Lorient;
- Morbihan (administrative centre Vannes) as far as around 4 M S of the mouth of the Vilaine.

49 PAYS-DE-LA-LOIRE REGION (NANTES):
- Loire-Atlantique (administrative centre Nantes) as far as 13 M SE of Pointe de Saint-Gildas, in Baie de Bourgneuf;
- Vendée (administrative centre La Roche-sur-Yon) as far as the centre of Anse de l'Aiguillon, 9 M NNE of La Rochelle.

55 POITOU-CHARENTES REGION (POITIERS):
- Charente-Maritime (administrative centre La Rochelle) limited to the S by the right bank of the Gironde and extending along the latter as far as 23 M upstream of Royan.

61 AQUITAINE REGION (BORDEAUX):
- Gironde (administrative centre Bordeaux) from Pointe de Grave to 9 M S of Cap Ferret;
- Landes (administrative centre Mont-de-Marsan) as far as the centre of the mouth of the Adour;
- Pyrénées-Atlantiques (administrative centre Pau).

01 1.4.1.2. Military and maritime organisation

07 MILITARY ORGANISATION. – The coastline described in this publication belongs to the Atlantic-English Channel-North Sea maritime region, administrative centre Brest, extending from the Belgian border to the Spanish border.

13 This maritime region comprises two arrondissements: that of the English Channel and the North Sea, which is based in Cherbourg, and that of the Atlantic, which is based in Brest.

19 The maritime arrondissement of the English Channel and the North Sea is limited as follows: to the N, by the intersection of the coastline and the Belgian border; to the S, by the point on the coast at longitude 1° 34' W at the limit of the La Manche and Ille-et-Vilaine departments.

25 The maritime arrondissement of the Atlantic is limited to the N by the S limit of the maritime arrondissement of Cherbourg and to the S by the Spanish border.

31 The general naval officer commanding the Atlantic-English Channel-North Sea maritime region (abbreviated title and telegraphic address: CECLANT) is also the commander of the Atlantic maritime arrondissement. The English Channel-North Sea maritime arrondissement is headed by a general naval officer, subordinate to CECLANT, with the title of commander of the maritime arrondissement of the English Channel and of the North Sea (abbreviated title and telegraphic address: COMAR Manche).

37 STATE ACTION AT SEA. – The representative of the state at sea is the maritime prefect, who is a government delegate.

43 The Maritime Prefect of the Atlantic is the commander of the Atlantic-English Channel-North Sea maritime area (abbreviated title: PRÉMAR Brest; telegraphic address: PRÉMAR ATLANT). The Maritime Prefect of the English Channel and the North Sea is the commander of the English Channel and North Sea maritime area (abbreviated title: PRÉMAR Cherbourg; telegraphic address: PRÉMAR MANCHE). A joint decree from these two maritime prefects delimits their areas of jurisdiction according to the line connecting positions 48° 37.7' N – 1° 34.0' W (limit on the coast of the departments of La Manche and Ille-et-Vilaine), 48° 49' N – 1° 49' W, 48° 53' N – 2° 20' W and 50° 02' N – 5° 40' W.

49 The duties of the maritime prefects are exercised in accordance with *Decree 2004-112 of 6 February 2004* on the organisation of state action at sea. The maritime prefects, invested with general police powers and the powers of state representatives at sea, have authority particularly with regard to the defence of sovereign rights and national interests, maintenance of public order, protection of persons and property, protection of the environment and coordination of the fight against illegal activities. They lead and coordinate action at sea by administrative bodies and the use of their resources.

55 No texts mention a seaward limit for the jurisdictional area of the maritime prefects. This area is in fact the space within which the state is able to act, taking into consideration the resources it has at its disposal. Under certain conditions, the *Brussels International Convention of 29 November 1969* allows any threatened state to intervene on the high sea in case of an accident that may lead to pollution.

61 The maritime prefect chairs a maritime conference bringing together all the administrative bodies with competences relating to the sea.

67 The navigation, pilotage and fishing police service is under the jurisdiction of the Maritime Affairs administration, 16 services of which (Le Guilvinec, Concarneau, Quimper, Lorient, Auray, Vannes, Saint-Nazaire, Nantes, Noirmoutier, Yeu, Les Sables-d'Olonne, La Rochelle, Marennes-Oléron, Bordeaux, Arcachon and Bayonne) are stationed within the area covered by these *Sailing Directions*.

73 The Maritime Affairs administrators (officers of the French navy seconded to the ministry for the sea), who are the heads of the abovementioned bodies, are the direct delegates and representatives of the maritime prefect. Occasionally, these administrators may also exercise certain military functions under the jurisdiction of the commander of the maritime arrondissement.

01 **1.4.1.3. Population**

07 In 2009, the population of metropolitan France, including Corsica, was estimated at 62.5 million inhabitants. Paris, the capital, had 2.2 million inhabitants and the Parisian settlement had a population of 10.1 million.

13 The population density (114 inhabitants per square kilometre) is not uniform. Overall, and taking into consideration mountainous regions, the part of the territory of France situated to the NE of the line connecting Le Havre to Marseille is more densely populated than the part situated to the SW of this line.

19 The urban population represents 76% of the total population in metropolitan France.

25 The main port settlements of the region described in this publication are Bordeaux (809,000 inhabitants), Nantes (570,000 inhabitants), Bayonne (191,000 inhabitants), Saint-Nazaire (143,500 inhabitants), La Rochelle (119,700 inhabitants) and Lorient (116,400 inhabitants).

01 **1.4.2. RESOURCES. TRADE. PORTS**

01 **1.4.2.1. Agricultural resources**

07 The available agricultural area represents 58% of the territory of metropolitan France, which is around 32 million hectares. 92% of this area is actually worked. Poplar plantations, woods and forests cover 28% of the territory, and their coverage is growing steadily.

13 France produces an abundance of almost all the staple commodities needed to feed the country.

19 Farming is mixed in France. The following are grown: cereals, which take up 30% of the agricultural area (4th in the world for wheat production, 7th for maize, 4th for barley), potatoes, a large variety of vegetables (early crops) and fruits, sugar beet, vines and fodder.

25 France is the 2nd largest wine producer in the world. Livestock farming and the food processing industries are highly developed.

31 With regard to fishing, France is 26th in the world with an annual figure of around 728,500 tonnes of marine catches and harvesting (2007).

01 **1.4.2.2. Energy and mining resources**

07 These resources are varied but insufficient. In 2005, France had a rate of energy dependency of 54.5%. Oils are only produced in small quantities (Landes, Paris basin). The Lacq natural gas deposit supplies a significant portion of the country. Hydropower provides 10% of France's electricity and nuclear power supplies 78%. With around 20 nuclear power stations, France produces the 2nd largest volume of this type of energy in the world (a little over half of the production of the USA).

13 There are few mineral resources. In the field of ferrous and non-ferrous metals, metropolitan France now has only marginal mining activity, most of its known resources having been exhausted. There is still a high level of metallurgic activity, though it depends on external supplies.

01 **1.4.2.3. Imports**

07 Oils, coal; iron-rich minerals; wood, paper pulp; phosphates, fertilisers; wool, cotton, jute; rubber; cars and equipment; electrical and computer equipment; machine tools and manufactured products; citrus fruits; coffee, cocoa; fruits.

01 **1.4.2.4. Exports**

07 Cars and equipment; production from the aeronautical and space industry, steel working, refining, chemical and pharmaceutical industry; luxury goods (perfumes, fashion); wines; cereals (wheat, maize, barley), sugar, early crops, fruits; fabrics, manufactured products.

01 **1.4.2.5. Merchant marine**

07 As at 1 July 2009, the commercial fleet flying the French flag (28th largest in the world) comprised 215 vessels with a gross tonnage over 100, with a total gross tonnage of 6,180,000 (UMS) and a deadweight tonnage of 8,140,000 t. The oil tanker fleet (oil tankers and liquefied gas carriers) consisted of 54 vessels representing respectively 53% of the gross tonnage and 68% of the deadweight tonnage mentioned above.

13 Total maritime trade (imports and exports) amounted to 384 million tonnes in 2007.

01 **1.4.2.6. Port activity**

07 Alongside the old forms of traffic, which are growing and leading to the development of coastal industries (oils and petrochemicals), new forms of traffic (liquefied gas, rich ores for coastal steel working, sulphur, containers) and new means of transport (car transporters, giant catamarans, high speed vessels, container carriers, Ro-Ro vessels, cruise liners) have appeared.

13 The main ports described in this publication are the "Grands ports maritimes" [large maritime ports] of Nantes-Saint-Nazaire, La Rochelle-Pallice and Bordeaux, as well as the following ports of national interest: Concarneau, Lorient and Bayonne. The other, secondary ports are departmental (coasting and fishing) or communal (leisure) ports.

19 COMMERCIAL PORTS. – The ports in the area described in this volume (with an indication, for 2008, of their national rank and of the approximate annual tonnage, in millions of tonnes, of the total goods loaded and unloaded) are as follows:
– Nantes, with 33.6 million tonnes of goods loaded and unloaded in 2008 (48% of which were oils) is in 5th place nationally;
– Bordeaux (8th; 9 million tonnes of goods, 48% of which were oils);
– La Rochelle (9th; 7.9 million tonnes of goods, 35% of which were oils);
– Bayonne (10th; 3.7 million tonnes of goods, 20% of which were oils);
– Lorient (13th; 3 million tonnes of goods, 33% of which were oils).

25 Next come the ports of Les Sables-d'Olonne, Rochefort and Tonnay-Charente, with a much more modest amount of traffic.

31 FISHING PORTS. – There is a very large number of fishing ports, particularly on the S coast of Brittany. With an annual output of more than 22,000 tonnes, Lorient is the most important fishing port in the area, followed by Concarneau (20,600 t), Guilvinec (16,600 t), Loctudy (5700 t), Les Sables-d'Olonne (5500 t), La Cotinière (5300 t), La Turballe (5100 t), Saint-Jean-de-Luz (4700 t), Saint-Gilles-Croix-de-Vie (4100 t) and La Rochelle (3150 t).

37 MARINAS. – The coastline described in this publication has around 60 marinas, most of which can shelter at least 500 vessels. Two of them have a capacity of more than 2500 berths (La Rochelle and Arcachon).

43 The following ports are among the best equipped, with almost 1000 berths or more: the complex of Bénodet-Sainte-Marine, Port-la-Forêt, the complex of ports in the roadstead of Lorient, Port-Haliguen, La Trinité-sur-Mer, Le Crouesty, Le Pouliguen, Pornichet, Pornic-Noëveillard, Port-Olona (Les Sables-d'Olonne), Les Minimes (La Rochelle), Royan, Arcachon and Capbreton.

01 **1.4.3. UNITS OF MEASUREMENT. CURRENCY**

07 The legal units of measurement are defined by *Decree 61-501 of 5 May 1961* last amended by *Decree 2009-1234 of 14 October 2009.*

01 **1.4.3.1. Metric system**

07 The legal system of measurement is the metric system, made up of seven basic units known as the International System of Units (SI). These basic units are the metre, the kilogramme (mass), the second, the ampere, the kelvin, the mole and the candela.

13 UNITS OF LENGTH. – The metre (symbol: m) has the following multiples and submultiples:
– decametre (10 m); hectometre (100 m); kilometre (1000 m);
– decimetre (0.1 m); centimetre (0.01 m); millimetre (0.001 m).

19 The nautical mile (unit not forming part of the metric system, used in navigation) [M] has a value of 1852 m.

25 UNITS OF SPEED. – The metre per second (m/s).
– The knot (unit not forming part of the metric system, used in navigation) corresponds to one nautical mile per hour. The knot has no abbreviation or symbol.

31 UNITS OF SURFACE AREA. – The square metre (m^2).
– The are (100 m^2) and the hectare (10,000 m^2 are used to measure land surface areas.

37 UNITS OF VOLUME. – The cubic metre (m^3).
– The cubic decimetre (0.001 m^3) is also called the litre.

43 UNITS OF MASS. – The kilogramme (kg).
– The tonne (t) is the mass of 1000 kilogrammes. The mass of 100 kilogrammes is sometimes called the quintal (cereals). The pound is the mass of half a kilogramme or 500 grammes.

49 UNITS OF PRESSURE. – The pascal (Pa):

55 The hectopascal multiple (100 Pa) [hPa] is used in particular to measure atmospheric pressure.

01 **1.4.3.2. Currency**

07 The monetary unit is the euro (symbol: €), divided into one hundred cents.

13 5, 10, 20, 100, 200 and 500 euro notes are in use, along with 1, 2, 5, 10, 20 and 50 cent and 1 and 2 euro coins.

01 **1.4.4. STANDARD TIME**

01 **1.4.4.1. Standard time**

07 Throughout the French territory, standard time is defined relative to universal time (UT).

13 The standard time is obtained by adding or subtracting a whole number of hours to or from the universal time. Decrees set this number for each part of the French national territory depending on the time zone.

19 For metropolitan France, the standard time is that of time zone A.

01 **1.4.4.2. Daylight saving time**

07 In Europe, a seasonal time known as daylight saving time is adopted from the end of March to the end of October. In metropolitan France, the daylight saving time is that of time zone B.

13 In accordance with the provisions of the *8th Directive of the European Parliament of 22 July 1997*, daylight saving time begins on the last Sunday in March at 0100 UTC and ends on the last Sunday in October at 0100 UTC.

01 **1.4.5. BUOYAGE**

07 See also the *Guide du Navigateur [French Mariner's Handbook], volume 3* or the publication *Signalisation maritime [Maritime Signals]*.

13 The maritime buoyage system is that of IALA region A (combined cardinal and lateral system, red to port, see abovementioned publications).

19 An increasing number of light buoys are equipped with solar energy power panels, which change their general appearance even though, strictly speaking, their shape remains within the buoyage rules.

01 **1.4.5.1. Maritime signals**

07 The most important beacons and buoys are equipped with a radar reflector. These radar reflectors are not generally marked on the charts. They are mentioned in the *Lists of Lights and Fog Signals* (for the beacons and buoys bearing a light and/or a fog signal).

01 **1.4.5.2. Coastal buoyage**

07 In the immediate vicinity of the coasts, buoyage marks can be encountered concerning in particular:
- shellfish beds;
- bathing areas;
- areas allocated to high-speed craft, such as jet skis, and water skiing;
- regatta routes.

13 These various types of buoyage may not be marked on the charts or mentioned in the *Sailing Directions*. This is particularly the case for seasonal types of buoyage.

19 Areas reserved for nautical leisure activities (or in which such activities are prohibited) are normally marked by special mark buoys bearing pictograms expressing the authorisation (or prohibition) of the activity in question (*Guide du Navigateur [French Mariner's Handbook], volume 3*).

01 **1.4.6. PILOTAGE**

07 Pilotage in civil ports is carried out by personnel commissioned by the state. Pilotage is compulsory, in each port, for vessels equal to or over a certain length or depending on the nature of their cargo.

01 **1.4.6.1. Pilotage stations**

07 The pilots covering the geographical area of this publication are distributed among six pilotage stations:
- Brest / Concarneau / Odet;
- Lorient;
- La Loire and Les Sables d'Olonne;
- La Rochelle / Charente;
- La Gironde;
- L'Adour.

01 **1.4.6.2. Requesting a pilot**

07 Vessels for which pilotage is compulsory are required to report their time of arrival between 12 and 48 hours in advance depending on their port of destination or, at the latest, at the time they leave the previous port of call. A premium is added to the tariff of vessels proven not to have respected this provision.

13 Warships are exempted from compulsory pilotage when entering and departing from military ports.

19 For the procedures regarding requesting a pilot, see the publication *Radiocommunications de pilotage [Radio Communications for Pilotage] (93)*. As soon as the vessel enters the pilotage area, it must signal the pilot by the following means:
- by day, flag G of the *International Code of Signals*;
- by night, Morse light signals.

01 **1.4.6.3. Distinctive marks**

07 Subject to the special provisions for each station, the pilot cruising vessel can be distinguished by:
- black painting on the outside, with a 0.15 m-wide white band;
- a distinctive anchor on the funnel, when there is one;
- the distinctive letters of the station reproduced in white on the fore and aft of the bulwarks.

01 **1.4.6.4. Reporting of the state of a vessel heading to or exiting from a port**

07 In accordance with the provisions of the *Decree of 14 December 1929, as amended*, the master must declare to the pilot boarding the vessel, the draught, speed and turning conditions of his vessel and, in general, any information likely to have an impact upon the behaviour of the vessel.

13 In addition, the master must fill in, sign and provide to the pilot an information sheet (vessel check sheet) drawn up either in French or in English. The French version of this sheet is reproduced in Annex L of the *Guide du Navigateur [French Mariner's Handbook], volume 3*.

19 In application of local regulations, certain information may be requested in addition to that on the sheet.

25 Pilots shall notify the head of pilotage and the various services involved, in particular the harbour master's office and the Maritime Affairs vessel safety centre, of the following:
- information on the sheet that is likely to lead to specific measures being taken by the port or maritime authority and, in general, regarding the state of the piloted vessel when it poses a

risk to the people on board, the cargo, other vessels, the port facilities or the environment;
– of any accidents or incidents that occur during pilotage.

31 These reports must be provided within the timescales and in a form compatible with the optimal use of the information by the services involved. They must be transmitted directly and immediately by radio telephone when the information received or the observations made highlight an immediate risk.

01 **1.4.7. ASSISTANCE – RESCUE**

07 The publication *Radiocommunications maritimes [Maritime Radio Communications], volume 4* describes in detail the organisation of the global maritime distress and safety system (GMDSS), in particular the means of transmission and collection of distress alerts by digital selective calling (DSC).

13 The *International Convention on Maritime Search and Rescue, 1979* (SAR convention) does not create an international maritime rescue institution, but it sets out common standards for states and organises their cooperation. The oceans are divided into search and rescue regions (SRR). The resources of the GMDSS (INMARSAT and COSPAS-SARSAT systems) allow fast, reliable transmission and localisation of a distress alert.

01 **1.4.7.1. Regional operational monitoring and rescue centres (CROSS)**

07 *Decree 88-531 of 2 May 1988* stipulates, on the one hand, that in metropolitan France, the maritime prefects are responsible for search and rescue operations for persons in distress at sea within the areas under French responsibility, and, on the other hand, that the directors of the regional operational monitoring and rescue centres (CROSS) are the permanent representatives of the maritime prefects.

13 Within the area covered by this publication, the Maritime Prefect of the Atlantic is represented by the director of CROSS ÉTEL (47° 39.8' N – 3° 12.0' W) located to the S of Lorient. Any information compromising the safety of navigation and any accident at sea must be reported to this CROSS.

19 The CROSS, as part of their duties as maritime rescue coordination centres (MRCC), are permanently operational, centralise all alerts and information concerning persons in distress at sea and direct search and rescue operations. They form part of the GMDSS.

25 The CROSS ÉTEL maintains a radio watch for alerts, in accordance with the GMDSS. It maintains a radio watch on alerts transmitted by means of digital selective calling (DSC) on VHF channel 70, and on the frequency MF 2187.5 kHz. It also maintains a radio watch on VHF channel 16.

31 In order to maintain a radio watch on channels 16 and 70 (DSC), the CROSS have remote stations covering the whole of their coastal area of jurisdiction. The semaphores of the French navy supplement this system by maintaining a radio watch on channel 16 during their opening hours.

37 In addition, the CROSS are responsible for routing communications relating to medical radio consultations and for connection with the maritime medical consultation centre in Toulouse.

43 Within the area covered by this publication, the French area of responsibility for search and rescue at sea is limited geographically:
– to the E, by a line connecting the Spanish border with positions 44° 20' N – 4° 00' W, 45° 00' N – 8° 00' W;
– to the N of the latter, by longitude 8° W.

49 The CROSS ÉTEL can be contacted, by day and night:
– directly by VHF (channel 16) or through the semaphores;
– by telephone, fax, telex or email: CROSS ÉTEL, tel: +33 (0)2 97 55 35 35; fax: +33 (0)2 97 55 49 34; telex: 950519; email: etel.mrcc@developpement-durable.gouv.fr or etel@mrccfr.eu

01 **1.4.7.2. Means of assistance and rescue**

07 TUGS. – The ports of Brest, Saint-Nazaire, La Rochelle-Pallice and Bordeaux have open-sea tugs, from which vessels can request assistance. At Brest (see *Sailing Directions,*

publication C2A), the French navy has a civil open-sea tug that is able to intervene, in accordance with usual commercial rules, up to 60 M from the Ouessant traffic separation scheme, or in other words, in the N part of the area covered by this publication. This tug intervenes without consultation, by order of the maritime prefect, in case of grave immediate danger.

13 THE SNSM. – The *Société nationale de sauvetage en mer* [National Lifeboat Association] is a recognised public service association that has 4000 volunteers at permanent stations and 1000 seasonal volunteers (beach lifeguards).

19 The offices of the SNSM are at 31, Cité d'Antin – 75009 Paris; tel: +33 (0)1 56 02 64 63; fax: +33 (0)1 56 02 64 63.

25 MONITORING AND RESCUE STATIONS. – Plate 1.4.7.2. shows the positions of the CROSS, lookout stations and semaphores, as well as those of permanent SNSM stations equipped with all-weather lifeboats or class 1, 2 and 3 launches. Along with these stations there are almost thirty (around fifty in summer) SNSM stations equipped with light launches or dinghies only.

31 In order to initiate a rescue, in case of an alert, vessels should contact the closest CROSS or semaphore which will implement the appropriate means of intervention.

01 **1.4.7.3. Rescue operations**

07 The *Guide du Navigateur [French Mariner's Handbook], volume 3* contains all the information needed to carry out rescue operations. This handbook also includes the main provisions from the *International Aeronautical and Maritime Search and Rescue Manual (IAMSAR Manual)*, published by the IMO.

13

[diagram]

FR	EN
LÉGENDES:	KEYS:
Vigie (Sémaphore veillant de jour comme de nuit)	Lookout station (Semaphore maintaining watch day and night)
Sémaphore veillant de jour	Semaphore maintaining watch by day
CROSS	CROSS
CSTT – Canot de sauvetage tous temps	CSTT – All-weather lifeboat
V1 – Vedette de 1re classe	V1 – Class 1 launch
V2 – Vedette de 2e classe	V2 – Class 2 launch
V3 – Vedette de 3e classe	V3 – Class 3 launch

1.4.7.2. – Positions and equipment of the monitoring and rescue stations.

01 **1.4.8. SAFETY, INFORMATION AND POLICE SIGNALS**

01 **1.4.8.1. Semaphores (or lookout stations)**

07 Semaphores, equipped by the French navy, are positioned at various points on the coast (§ 1.4.7.2.) [list for the whole of the French coast in the publication *Naviguer en Sécurité [Navigate in safety]*. Independently of their military role, they are equipped to:
- display storm signals;
- in case of accident, transmit the alert to the CROSS concerned and, possibly, at the request of the latter, guide the means of rescue;
- transmit urgent messages regarding vessel safety.

13 There are three types of semaphores, classified according to their staffing levels: lookout stations, first category semaphores and second category semaphores. Lookout stations and first category semaphores maintain a permanent watch. Second category semaphores maintain a watch from sunrise to sunset only.

19 For reasons of simplification, in this publication, as well as on charts and other navigational publications, semaphores maintaining a permanent watch are known as "lookout stations" and those maintaining a watch by day only are known as "semaphores".

25 They communicate with vessels via VHF, or possibly by light signals or flags from the *International Code of Signals*.

31 They broadcast local navigational warnings (local AVURNAVs) on VHF (call on channel 16 then broadcast on channel 10).

37

Transmitter	Broadcast times (local)	VHF channel
Beg Meil – Cap Ferret – Les Baleines – Piriac	08:30 – 16:30	Call channel 16. Release channel 10
Beg Melen – Chassiron Chémoulin – Messanges	08:45 – 16:45	As above
Grave – Saint-Julien – Saint-Sauveur – Socoa	09:00 – 17:00	As above
Penmarc'h – Le Talut	09:15 – 17:15	As above

1.4.8.1. – Broadcasting of local AVURNAVs by the semaphores.

43 They respond to requests for information from leisure vessels and transmit to them, in case of emergency or danger, the radio direction-finding survey of their VHF transmissions.

01 **1.4.8.2. Police signals**

07 The signals below are borne by French vessels responsible for navigational policing:
- by day, a white and blue triangle with the letter "P" in the white part;
- by night, a quick violet light with a range of 6 M visible over the entire horizon.

01 **1.4.8.3. Other signals**

07 For meteorological signals, see section 1.2.9.

13 For port traffic signals and tide and water height signals, see the publication *Maritime Signals*.

19

Meaning	By day	By night
Entry prohibited	A red flag	A red light
Exit prohibited	A green flag	A green light
Entry and exit prohibited	A red flag on a green flag	A red light on a green light

1.4.8.3. – Simplified port traffic signals.

01 **1.4.8.4. Lights and marks of vessels and river convoys**

07 Vessels navigating on rivers are likely to encounter, apart from isolated vessels transporting dangerous goods or not, towed vessels or barges, narrow boats or towed or pushed river convoys transporting dangerous goods or not, and dredging barges towed in couples.

13 These craft bear the lights and marks and emit the acoustic signals set out in the *Règlement Général de Police de la Navigation Intérieure* [*General regulations for the policing of inland navigation*] *(Decree 73-912 of 21 September 1973 amended by Decree 77-330 of 28 March 1977*) or by prefectoral decree.

19 It is advisable to monitor their lighting and their marks carefully in order to manoeuvre in good time, if necessary.

01 **1.4.9. MARITIME BOUNDARIES**

01 **1.4.9.1. Internal waters. Territorial waters (or territorial sea)**

07 BASELINES. – The baselines are the low water mark along with the straight baselines and the closing lines of the bays defined by the *Decree of 19 October 1967*.

13 INTERNAL WATERS. – The internal waters are situated within the baselines. The sovereignty of the state over them is absolute.

19 TERRITORIAL WATERS. – The territorial waters extend up to a limit set at 12 M from the baselines. The sovereignty of the French state extends into the airspace above as well as to the seabed and subsoil of the sea within the limit of the territorial waters.

25 In the absence of a specific convention, the width of the territorial waters does not extend beyond a median line on which all points are equidistant from the closest points of the baselines of the French coasts and the coasts of the foreign countries that face the French coasts or are adjacent to them.

31 When the distance between the baselines of the French coasts and those of the coasts of a foreign state facing them is 24 M or less or no longer allows the existence of an area of high sea sufficient for navigation, provisions are put in place in order to ensure free maritime and air navigation, in accordance with international conventions and, where necessary, following agreement with the states involved.

37 These provisions do not affect the exercise of fishing rights granted to certain foreign vessels under the conditions laid out in international agreements and the national laws of France. Fishing within the "6–12 M" strip is permitted for French fishing vessels (for certain species) as far as Cabo Mayor (3° 47' W), and conversely, Spanish fishing vessels may fish certain species within the same strip as far as latitude 46° 08' N in the Atlantic.

01 **1.4.9.2. Contiguous zone**

07 The French maritime customs zone (*Law of 31 July 1968*) has the same limits as the territorial waters.

13 However, a contiguous zone was created (*Law of 31 December 1987*) within which the customs services can carry out the necessary checks with a view to preventing and prosecuting violations of the laws and regulations that this administrative body is responsible for applying. This contiguous zone extends up to 12 M beyond the territorial waters.

19 In order to combat drug trafficking, customs agents may inspect vessels with a gross tonnage of 1000 or less within the territorial waters and the contiguous zone.

01 **1.4.9.3. Continental shelf and economic zone**

07 Pursuant to *Law 75-655 of 16 July 1976 amended* by *Law 2003-346 of 15 April 2003*, France "exercises, within the economic zone, which can extend from the limit of the territorial waters up to 188 M beyond this limit, sovereign rights with regard to the exploration and exploitation of natural, biological or non-biological resources, the seabed, its subsoil and the superjacent waters".

13 *Decree 77-130 of 11 February 1977*, applying the abovementioned law, created an economic zone off the French national territory bordering the North Sea, the English Channel and the Atlantic from the Belgian border to the Spanish border.

19 Agreements have been concluded with the United Kingdom for the English Channel (*Sailing Directions, volume C2A*) and with Spain for the Bay of Biscay. As Spain refuses to adopt the same line of separation for the economic zone as for the continental shelf, France and Spain jointly manage the exploration and exploitation of the natural resources of the continental shelf between latitudes 45° 00.5' N and 45° 30.0' N and longitudes 5° 00.0' W and 5° 40.0' W.

01 **1.4.10. CONNECTIONS**

01 **1.4.10.1. Land connections**

07 A railway line connects all of the large towns on the coast and all of the commercial ports of the Bay of Biscay. The road network (expressways and motorways) runs along the coast and connects the main ports.

01 **1.4.10.2. Maritime connections**

07 Numerous French and foreign shipping lines serve the ports of France, connecting them with the whole world.

13 Road links known as "sea motorways" connect the ports of the Bay of Biscay with those in Spain and Portugal.

19 The activity of the ports in the area described in this volume is summarised in section 1.4.2.6.

01 **1.4.10.3. Air connections**

07 INTERNATIONAL AIRPORTS ON THE COAST.

13 Open permanently by day and by night: Nantes-Atlantique, Bordeaux-Mérignac.

19 Open permanently by day and, on request, by night: Quimper-Cornouaille, Saint-Nazaire-Montoir and Biarritz-Bayonne-Anglet.

25 Open permanently by day: Lorient-Lann Bihoué.

31 OTHER AIRFIELDS. – There are also several airfields open to public air traffic but not to international traffic. These are: Quiberon, Belle-Île, Vannes-Meucon, La Baule-Escoublac, Les Sables-d'Olonne-Talmont, Île d'Yeu, La Rochelle-Laleu, Saint-Pierre d'Oléron, Rochefort-Saint-Agnant, Royan-Médis, Soulac-sur-Mer, Arcachon-la Teste de Buch, Biscarosse-Parentis and Mimizan.

37 HELIPORTS. – Unless otherwise noted, the coastal heliports mentioned below, in the order in which they appear in this publication, are located in or near hospital centres:

43 Concarneau-le-Porzou; Plœmeur (private hospital), Vannes-Chubert, Belle-Île-Le Palais, Saint-Nazaire, Nantes; Challans-le-Foirail (46° 51' N – 1° 52' W; town hall), Île d'Yeu (Port-Joinville), Bordeaux (three heliports: hospital centre, military hospital and platform of Bordeaux-Nord), Lesparre (45° 18' N – 0° 56' W), intercommunal safety and first aid union, Lacanau-le Huga (tourist management area), Arcachon, Biscarosse and Mimizan.

01 1.5. MARITIME REGULATIONS

07 In order to increase navigational safety and decrease the risk of accidental pollution in the English Channel and at the tip of Brittany, where vessel traffic is very heavy, a significant number of regulations have been introduced.

13 This body of regulations forms the subject of this section, in which the following are presented in succession:
- general IMO regulations (§ 1.5.1.);
- Franco-British MAREP recommendations, supported by the IMO, and European provisions (§ 1.5.2.);
- general French regulations as well as certain specific regulations.

01 1.5.1. INTERNATIONAL MARITIME ORGANISATION (IMO) REGULATIONS

07 The purpose of vessel traffic routeing is to improve navigational safety in convergence zones, in areas of high traffic density and those in which the free movement of vessels is hindered by the lack of maritime space, by the existence of navigational obstructions, by a limited depth or by unfavourable weather conditions.

13 The Bay of Biscay, covered by this publication, does not have any traffic routeing systems or measures recommended by the IMO. However, given the vicinity of the traffic separation schemes (TSS) of Ouessant, to the NNW, and of Cabo Finisterre, to the SW, it seemed useful to provide the essential information regarding these systems and measures.

19 The Ouessant TSS is described in the *Sailing Directions, volume C2A*.

25 The Cabo Finisterre TSS is described in the *Sailing Directions, volume C3*.

01 1.5.1.1 Objectives and definitions

07 The precise objectives of a traffic routeing system and the terminology adopted by the IMO are detailed in the *Guide du Navigateur [French Mariner's Handbook], volume 3*.

01 1.5.1.2. Use of traffic routeing systems

07 The traffic routeing systems are intended for use by day and night, in all weather conditions.

13 In the absence of any indication to the contrary, it is recommended that all vessels use the traffic routeing systems. Given the need for an adequate under-keel clearance, it is necessary, if a vessel decides to use a traffic routeing system, to take into consideration the depth indicated on the chart, the possibility of modifications to the seabed since the last survey and the effects of the weather conditions and the tides on the depth.

19 Vessels navigating within a traffic separation scheme adopted by the IMO must in particular comply with the provisions of Rule 10 of the *International Regulations for Preventing Collisions at Sea, 1972*, in order to reduce as far as possible the risks of collision with other vessels. The other provisions of the *International Regulations for Preventing Collisions at Sea* apply in all cases, particularly the steering and sailing rules, if there is considered to be a risk of collision with another vessel.

25 At the junction at which streams of traffic coming from various directions meet up, it is not truly possible to undertake proper traffic separation, as vessels may have to cut across routes or change routes. Vessels must therefore navigate with great care in these areas and not lose sight of the simple fact that following a direct route does not give a vessel either special privileges or the right of way.

31 A deep water route is intended mainly for vessels that, by reason of their draught and of the depth of water available in the area involved, can only use such a route. Direct traffic to which

the conditions mentioned above do not apply should, if possible, avoid using deep water routes.

37 In two-way routes, including deep water routes, vessels should, as far as possible, keep to starboard.

43 The arrows marked on the charts concerning the traffic routeing systems show only the general established or recommended direction of traffic flow. Vessels are not required to follow the route marked by these arrows strictly.

49 Signal "YG" of the *International Code of Signals* means: "You appear not to be complying with the traffic separation scheme".

01 **1.5.1.3. Signalling of storage tankers transporting heavy oil products. WETREP reporting system**

07 The Western Europe mandatory tanker reporting system (WETREP), approved by the IMO, is in force in the Western European sea area, which is particularly vulnerable.

13 The vessels concerned are oil tankers of all types that are heading to or coming from a place or port of call in the area, with a deadweight tonnage of more than 600 t, and that are transporting products such as heavy crude oil, heavy fuel oil, bitumen and tar.

19 The coasts described in these Sailing Directions, and their approaches, lie within the WETREP area.

25 The system, the area covered and the procedure to be applied are detailed in the publication *Radiocommunications de pilotage [Radio Communications for Pilotage] (93)*, to which reference should be made.

01 **1.5.2. EUROPEAN PROVISIONS**

01 **1.5.2.1. European cooperation for combating pollution**

07 Since 1978, a certain number of measures designed to protect the French coasts from the dangers of accidental pollution by oil or dangerous substances have been implemented. These measures have been strengthened or extended by other measures resulting either directly from European regulations or from the transposition of European directives (*European directives 2000/59 and 2002/59*).

13 In France, the signalling or reporting of pollution (*Ministerial Instruction of 6 September 1990*) forms the subject of a POLREP message sent to the CROSS concerned, which includes the characteristics of the pollution (oil, chemical products, drums, containers, etc.), position, time, source, weather conditions and actions undertaken (publication *Radiocommunications maritimes [Maritime Radio Communications]*).

01 **1.5.2.2. European provisions concerning oil tankers**

07 *Regulation (EC) No. 417/2002 of 18 February 2002* prohibits access to European ports by single hull oil tankers transporting heavy oil products, whatever their flag.

01 **1.5.3. FRENCH REGULATIONS**

07 The "Plan ORSEC maritime en Atlantique" [Maritime ORSEC plan in the Atlantic] (*Prefectoral Decree no. 2009/57 of 23 July 2009 of the Maritime Prefect of the Atlantic*) integrates the various rescue provisions in order to cope with maritime events. It includes general provisions required in order to manage any type of event, applicable under all circumstances.

13 This plan confers on the CROSS (§ 1.4.7.1.) the duty to coordinate interventions aiming to facilitate the investigation and collection of information, and to centralise all information regarding the pollution caused by vessels.

01 **1.5.3.1. Approaches to the French coasts**

07 The measures intended to protect the coasts of France against the danger of accidental pollution by oil stem from the directives of the *Ministerial Circular of 24 March 1978* and *Decree 2004-112 of 6 February 2004* on the organisation of state action at sea.

13 PREVENTION OF ACCIDENTAL MARINE POLLUTION. SURNAV MESSAGES. – Regulations in the approaches to the French coasts of the North Sea, the English Channel and the Atlantic are the subject of the *Joint Decree 2002/99 Brest of 18 October 2002 of the Maritime Prefect of the Atlantic – 2002/58 Cherbourg of 11 December 2002 of the Maritime Prefect of the English Channel and of the North Sea.* The text of this Decree is provided in Annex IV (§ 7.4.1.).

19 The regulations require vessels transporting oil or certain noxious or dangerous liquid substances specified by the Decree:

– to report to the CROSS with geographical jurisdiction their estimated entry into or movements within French territorial waters, six hours in advance, by means of a SURNAV-FRANCE message, a template of which is provided in the table below;

– if they have a gross tonnage over 3000 (UMS), to remain at least 7 M from the coasts of France.

25

Recipient	CROSS
Text	SURNAV – FRANCE
ALPHA	Vessel's name, call sign, flag
BRAVO	Date, time UT in the six-figure format DD HH MM (Z)
CHARLIE	Position of the assisting vessel (lat. long.)
ECHO	Course
FOXTROT	Speed
GOLF	Last port of call
HOTEL	Date, time UT and point of entry into French territorial waters or date, time and place of casting off
INDIA	Destination
KILO	Date, time UT and point of exit from French territorial waters or date, time UT of arrival at destination port, anchorage, holding area or deballasting position within French waters
MIKE	Radio watch maintained
OSCAR	Draught
PAPA	Cargo: quantity and type (as defined by MARPOL 73)
QUEBEC	Any defects, damage, faults or restrictions
UNIFORM	Type of vessel
X-RAY	Other remarks
ZULU	End of report

1.5.3.1.A. – Model of the message for advance notice of entry into French territorial waters.

31 They also require all vessels transporting oil or any of the substances defined by the Decree:

– throughout their stay in French territorial waters (if necessary until they are moored at a quay in a French port), to maintain a permanent radio watch on VHF channel 16 or on the channel prescribed for the navigation area, and to respond to any call from state vessels or coastal stations;

– within French territorial waters, to take all measures that the maritime prefect concerned may prescribe if they do not have their normal manoeuvring or navigational capacity.

37 Any vessel that is called on to provide assistance or to tow a vessel transporting oil or one of the substances specified by the Decree, located within 50 M from the French coasts, is required to inform the CROSS with geographical jurisdiction of this fact immediately by means of a SURNAV-AVARIE message.

43

Recipient	CALDOVREP, MANCHEREP or OUESSREP
Text	SURNAV – AVARIE
ALPHA	Name, call sign, flag of the assisting vessel
BRAVO	Date, time UT in the six-figure format DD HH MM (Z)
CHARLIE	Position of the assisting vessel (lat. long.)
ECHO	Course of the assisting vessel
FOXTROT	Speed of the assisting vessel
INDIA	Destination
PAPA	Cargo of the vessel involved in the accident (if known)
QUEBEC	Damage to the vessel involved in the accident (if known)
TANGO	Name and address of the owner, charterer or any agent of the assisting vessel in France
UNIFORM	Type of assisting vessel
X-RAY	Date, time and position of the vessel involved in the accident. Name, call sign and nationality of the vessel involved in the accident. Course and speed of the vessel involved in the accident. Miscellaneous information

1.5.3.1.B. – Model of the message for reporting accidents at sea by assisting vessels.

49 In addition, all vessels transporting oil or one of the substances specified by the Decree, coming from a port or anchorage situated outside the states of the European Union and expecting to anchor within French territorial waters, must send to the CROSS with geographical jurisdiction, when they leave the port of loading, a message including all the information defined in section 7.4.1.5., or indicating the authority in the European Union that possesses such information.

55 REPORTING OF ACCIDENTS AND INCIDENTS AT SEA (*Interprefectural Decree 2004/02 Brest – 2004/04 Cherbourg of 27 January 2004 of the Maritime Prefect of the Atlantic and of the Maritime Prefect of the English Channel and of the North Sea*). – The provisions below apply to all vessels carrying out commercial navigation with a gross tonnage of 300 or more and navigating within the limits of the French exclusive economic zone.

61 The master of any vessel concerned is required to report to the CROSS with geographical jurisdiction, by means of a message for which the model is provided below:

- any accident or incident endangering the safety of the vessel, such as collision, grounding, damage, fault or breakdown, flooding or shifting of cargo, any hull defects or structural faults;
- any incident or accident that compromises navigational safety, such as faults likely to affect the vessel's manoeuvring or navigational capacity, or any defect affecting the propulsion systems or steering apparatus, the electricity production facility or the navigational or communications equipment;
- any situation likely to lead to pollution of the waters or the coastline, such as the release or risk of release of polluting products into the sea;
- any slick of polluting products and any drifting container or package observed at sea.

67

Recipient	CROSS
Text	SURNAV – AVARIE
ALPHA	Name, call sign, flag of the vessel involved in the accident
BRAVO	Date, time UT in the six-figure format DD HH MM (Z)
CHARLIE	Position of the assisting vessel (lat. long.)
ECHO	Course
FOXTROT	Speed
GOLF	Last port of call
INDIA	Destination
MIKE	Radio watch maintained
OSCAR	Draught
PAPA	Cargo and details that can be used to obtain information on the dangerous and polluting goods transported
QUEBEC	Nature of the incident or situation encountered
ROMEO	Description of the pollution or of the dangerous goods lost overboard
TANGO	Name and address of the owner, charterer or any agent in France
UNIFORM	Type of vessel
WHISKY	Total number of persons on board
X-RAY	Date and time (UT) of any call for assistance or towing. Presence and name of any assisting vessel or time UT any assisting vessel will arrive
YANKEE	Request for retransmission of the report to another system such as, for example, AMVER, AUSREP, JASREP or MAREP

1.5.3.1.C. – Model of the message for reporting damage or accidents at sea by vessels involved in the accident.

73 ENTRY OF OIL TANKERS INTO THE FRENCH EXCLUSIVE ECONOMIC ZONE. – Entry into the French EEZ for all single hull oil tankers more than 15 years old transporting heavy fuel oil, tar, bitumen or heavy crude oil is subject to notification to the CROSS with geographical jurisdiction (Corsen or Étel) 24 hours in advance. It is strictly controlled by the French authorities.

79 APPROACH CHANNELS TO CERTAIN PORTS. – The conditions for access to certain ports in the Atlantic and the W English Channel are the subject of *Decree 2006/69 of 30 August 2006 of the Maritime Prefect of the Atlantic*. This Decree, extracts from which are provided in Annex IV (§ 7.4.2.), concerns vessels with a gross tonnage greater than 3000 (UMS), or 1600 GRT, transporting oil and certain dangerous substances. Such vessels must remain at all times at a distance of more than 7 M from the French coasts, except in the channels defined by the Decree.

01 **1.5.3.2. Regulations on movement within the waters and roadsteads**

07 References: *Decrees 13/75 of 22 July 1975 and 2001/29 of 4 July 2001 of the Maritime Prefect of the Atlantic.* The main provisions of these decrees are summarised below.

13 SPEED LIMIT. – The speed of vessels and floating craft is limited to five knots within a 300 m strip to seaward from the edge of the waters at the time in question.

19 SMALL RECREATIONAL CRAFT. – The movement of small recreational craft (especially canoes, kayaks, small inflatable craft, etc.) is prohibited at a distance of more than 300 m from a haven.

25 Individual windsurfing and sea kayaking, with no specific monitoring, is authorised at a distance of up to 1 M from a haven. This limit is increased to 2 M for an activity monitored from a registered vessel that meets the regulations in force.

31 JET SKIS. – The movement of jet skis is limited to a distance of up to 2 M offshore for craft on which the pilot remains in a seated position and 1 M for a dynamically balanced position. Navigation may be carried out by day only (between sunrise and sunset). It is prohibited within the 300 m coastal strip along the coastline of numerous communes, the list of which is provided by the abovementioned Decree 2001/29.

01 **1.5.3.3. Protection of submarine cables**

07 The protection of submarine cables is ensured by:
– firstly, by the *International Convention of 14 March 1884* for non-territorial waters;
– secondly, by the *French Law of 20 December 1884* for both territorial and non-territorial waters (*Guide du Navigateur [French Mariner's Handbook], volume 3*).

13 TELECOMMUNICATIONS CABLES. – Telecommunications cables are electrically live. It is therefore extremely dangerous to cut a submarine cable in order to free an anchor or net.

19 Trawlers in particular are invited to download in advance the lists of positions of telecommunications cables from the website www.sigcables.com, which can be consulted freely in French and in English. On this site, users of the sea will find a large amount of useful information, especially when snagged on a cable. Any snag must be reported immediately, with as precise a position as possible, to the CROSS with geographical jurisdiction (§ 1.4.7.1.) and on the France Télécom answer phone (long distance network department) on freephone number +33 (0)8 00 48 12 26.

25 It should be noted that the positions of certain submarine cables are not mentioned on the "sigcables" site as they are not used by France Télécom.

01 **1.5.3.4. Measures to be taken in case of discovery of suspect devices, containers or drums**

07 References: *Decrees 2002/23 of 15 May 2002 of the Maritime Prefect of the Atlantic.*

13 All objects found at sea, either submerged or floating, that are liable to contain dangerous materials, particularly those with the characteristics or appearance of military materials (bombs, shells, mines, torpedoes, etc.) are considered to be suspect devices.

19 Any discovery of a dangerous device on the seabed must be declared to the departmental director of Maritime Affairs or to the local Gendarmerie [police] brigade.

25 Any master or owner of a vessel that detects or discovers the presence of a suspect device must stop all lifting manoeuvres and notify the closest semaphore or the CROSS concerned via VHF channel 16, specifying the name and registration number of the vessel, the nature and description of the device, the position using geographical coordinates and the depth at which the device is submerged.

31 Any vessel with a suspect device on board, in its nets or in tow must report this as indicated above, and not approach within 3000 m from any port facility, any busy section of coast or any other vessel.

37 It must attempt to get to one of the temporary dumping areas defined in Annex VII, § 7.6. The anchoring position for the device within the area must be marked carefully. If the anchoring operation is judged to be dangerous, the vessel itself must anchor within the area until an intervention team arrives.

43 CONTAINERS AND DRUMS. – Vessels must attempt to identify the object without approaching too close, remain upwind in order to avoid inhaling any toxic vapours, and transmit the information as indicated for suspect devices.

49 In case of recovery in fishing apparatus, the crew must remain upwind of the container or drum, transmit the information, return the object to the water, marking it if it is judged to be dangerous, or stow it carefully on the deck if it is judged to be harmless.

55 TORPEDOES. – A stopped, floating torpedo may be considered to be a practice torpedo, but mariners that find a torpedo on the surface must not forget that the tank may contain pressurised air. Nor should they forget that the device is liable to start up again.

61 A sunken torpedo must be considered dangerous. A fisherman bringing up a torpedo in his nets must comply with the aforementioned prescriptions relating to any war ordnance caught in nets.

01 **1.5.3.5. Anchoring of devices**

07 Reference: *Decree 2001/63 of 14 September 2001 of the Maritime Prefect of the Atlantic.*

13 It is prohibited at all times to anchor, without authorisation, any devices such as rafts, diving boards, mooring posts and buoys within French internal and territorial waters, outside of the port limits. Requests for authorisation must be addressed to the Maritime Affairs services.

19 The prohibition set out above does not apply to maritime signalling marks, to fishing equipment signalling marks, to beaconage in channels and reserved areas established in the 300 m coastal strip, to beaconage in the port access channels, to temporary beaconage on the routes of nautical events or to divers' temporary beaconage.

01 **1.5.3.6. Health regulations**

07 SIGNALS. – Any "healthy" vessel entering territorial waters must hoist, by day, flag "Q" of the *International Code of Signals* and display, by night, though only within the limits of a port, a red light above a white light.

13 The ports of Saint-Nazaire, Nantes and Bordeaux may grant free pratique by radio. Contact the health inspection service of these ports for further information (publication *Maritime Radio Communications, volume 1*).

19 INSPECTION. – Any vessel not arriving from a port in a European Union state is likely to be inspected on arrival at a French port. Following this health inspection, the vessel will or will not be granted free pratique.

25 HEALTH MEASURES. – If a vessel presents a health risk, special measures may be taken: disembarkation and hospitalisation of the sick, isolation, vaccinations, disinfection of cabins and baggage, etc.

31 Monitoring the health of a passenger means that he/she may disembark on the condition that he/she provides an address and agrees to a medical check. Severe criminal sanctions are laid down for those violating these provisions.

37 UNIFICATION OF MARITIME COMMUNICATIONS HEALTH CONTROL. – Maritime health declarations are abolished with regard to all vessels, whatever their flag, heading from one port in a European Union country to another, on condition that these vessels do not stop at a port in a third country. Under normal health circumstances, such vessels do not need to request free pratique by radio and may head immediately for the quay, subject to the requirements of the port authorities or the customs service.

43 However, if there is or during the voyage there has been an illness on board that is suspected of being infectious, the master of the vessel must send a radio message to the port health authorities prior to the arrival of the vessel. If the vessel does not have a radio transmitter the master must report this situation immediately upon arrival in the port.

49 While the vessel remains in the port, the port health authority may board at any time and inspect the vessel and, in case of discovery of a contagious illness, take any necessary measure in accordance with the French regulations in force.

55 RODENT EXTERMINATION OR EXEMPTION FROM EXTERMINATION CERTIFICATES. – The ports of Saint-Nazaire, Nantes, La Rochelle-Pallice, Bordeaux and Bayonne are able to issue these certificates.

01 # 1.6. NAVIGATION.

01 ## 1.6.1. RADIO ELECTRIC AIDS TO NAVIGATION

07 The publication *Radionavigation maritime [Maritime Radio Navigation] (91)* provides, for the entire world, the list and characteristics of existing radio electric aids.

01 ### 1.6.1.1. Loran C

07 The Bay of Biscay is covered by the Loran C long-range radio navigation system (Northwest European Loran-C System, "NELS"). Reception is mainly via airwaves (gradient of the position line less than 2 M per microsecond for hyperbolae intersecting below an angle of greater than 15°).

01 ### 1.6.1.2. GPS and differential GPS

07 The accuracy of the GPS satellite navigation system is improved by the existence of the following differential GPS (or DGPS) stations:
- Pen Men (47° 38.9' N – 3° 30.5' W);
- Olonne (46° 31' N – 1° 48' W);
- Cap Ferret (44° 38.8' N – 1° 14.8' W);
- Cabo Machichaco (Spain) [43° 27' N – 2° 45' W];
- Cabo Mayor (Spain) [43° 29' N – 3° 47' W].

13 The range of these stations is between 100 and 150 M.

01 ## 1.6.2. DANGEROUS AREAS

01 ### 1.6.2.1. Fishing area

07 Mariners are liable to encounter concentrations of fishing boats on the French coasts described in this publication, particularly by night.

13 In order to reduce the risk of collision, vessels underway must ensure that they respect Rule 18 of the *International Regulations for Preventing Collisions at Sea*, which specifies the conditions in which they must keep out of the way of vessels engaged in fishing.

19 Trawling is carried out intensively, by day and night, up to the limit of the continental shelf.

25 Vessels carrying out wet fishing generally operate by day, near the coasts. They may group together in flotillas, particularly near the coasts of Brittany.

01 ### 1.6.2.2. Marine farms

07 Areas of marine farms lie within the coastal strip, mainly in uncovering depths ("*bouchots*" [mussel pilings], tables) and also in deep water (fish cages, lines). The deep water farms are marked and shown on the charts. With regard to those in the intertidal area, only their outer contour is shown.

13 Offshore installations, subject to the action of the winds, the currents and the sea, may in places extend beyond the limits shown by the beaconage or marked on the charts. They are cluttered with a very dense network of floating or partly submerged devices constituting a serious danger for navigation. It is therefore best, especially by night, to remain a fair distance seaward of these limits.

01 ### 1.6.2.3.Wrecks

07 Wrecks are not mentioned systematically in the course of the publication. Beaconage is guaranteed in the same way as it is for natural dangers by cardinal, lateral or isolated danger marks, according to their importance and their position in relation to the routes, passages and channels.

01 **1.6.2.4. Permanent explosives dumping grounds**
07 Reference: *Decree 2002/23 of 15 May 2002 of the Maritime Prefect of the Atlantic.*
13 The areas in which explosives and munitions are submerged are shown on the charts. These areas are not dangerous for surface navigation but they pose a risk to trawling and dredging. They are situated in fairly deep waters.

01 **1.6.2.5. Areas for the temporary dumping and destruction of devices caught in fishing nets**
07 Reference: *Decree 2002/23 of 15 May 2002 of the Maritime Prefect of the Atlantic.*
13 There is a list of these small areas (generally with a radius of 200 m), located in shallow waters in the approaches to ports, in Annex VII (§ 7.6).

01 **1.6.2.6. Area to be avoided in the Plateau de Rochebonne region**
07 Chart *7069*.
13 ENC *FR302070*.
19 In order to avoid the risk of pollution that could result from an accident on Plateau de Rochebonne (§ 1.7.3.4.), all vessels transporting oil must avoid navigating in a circular area with a radius of 7 M centred on 46° 10.0' N – 2° 26.0' W. Its limits are marked on the charts. Detailed knowledge of this area is essential in order to navigate through it without danger. This area to be avoided has been adopted by the IMO.

01 **1.6.3. EXERCISES BY FRENCH NAVY VESSELS AND AIRCRAFT**

01 **1.6.3.1. Advance warnings**
07 French navy vessels and aircraft carry out, by day and night, at every point on the coast though more specifically in certain areas mentioned below, exercises that may comprise sea-ground, air-ground, sea-sea and air-sea firing practice, launching of torpedoes and miscellaneous devices, shelling, anchoring of practice minefields, etc.
13 These firing practices, exercises or launches are announced by *urgent Notices to Mariners*, broadcast by radio and by the local press and displayed in Maritime Affairs offices. These notices indicate the precise manner, the areas, the nature and the duration of prohibitions and restrictions concerning navigation, anchoring and trawling. When the firing (or practice) area is one of the permanent areas defined hereinafter (§ 1.6.4.2. and subsequent sections), the *urgent Notice to Mariners* does not redefine the limits of the area and includes only the note "Zone (baptême de zone) activée" [Area (name of area) activated].
19 The practice areas are shown on special charts, "zonex" variants of certain navigational charts (see the SHOM *Catalogue des cartes marines et des ouvrages nautiques* [Catalogue of Marine Charts and Nautical Publications]).
25 The practice areas adjacent to the coast make up the coastal strip. Activities in the coastal strip are individual or occasional. They are carried out at locations established and managed beforehand (firing range, test and measurement range, launch ramp, etc.). Activities in the coastal strip are always announced by means of coastal or local Notices to Mariners.
31 By night, warships may navigate with obscured lights during certain exercises. Rockets may be launched, as well as floating smoke devices or flares. The light displays must not be confused with the distress signals or signals requesting assistance described in the *Guide du Navigateur [French Mariner's Handbook], volume 3*, or in the publication *Signalisation maritime [Maritime Signals]*.
37 However, small-calibre weapons firing does not give rise to the broadcasting of Notices to Mariners. Vessels firing such weapons are left completely free to do so, on condition that they do not fire towards land or in the vicinity of fishing vessels carrying out fishing activities.
43 LOSS OF FISHING APPARATUS. – No claims for damages shall be accepted for fishing apparatus lost in areas in which exercises may have been carried out that have been the subject, in due time, of Notices to Mariners.

01 **1.6.3.2. Submarines**

07 Although submerged submarines may operate over the entire length of the French coast, mariners must pay particular attention in the exercise areas indicated below.

13 Signal "NE 2" of the *International Code of Signals*, hoisted by a warship, signifies that there is a submerged submarine in the surrounding waters.

19 Merchant vessels must endeavour to pass at a great distance from a vessel bearing this signal and maintain a careful watch ahead to spot and avoid periscopes and snorkels.

25 When submerged, submarines may give off white or yellow pyrotechnic smoke signals and green and red flares. A red flare is the signal for a submarine in difficulty that is about to surface urgently. Merchant vessels sighting such signals must move away from them. They must not stop their propellers (*Guide du Navigateur [French Mariner's Handbook], volume 3*).

31 A submarine, on the surface, navigating at night, may bear, above the top light, a quick yellow light visible over the entire horizon.

37 EXERCISE AREAS. – Air and sea exercises with submarines take place in the Celtic Sea and in the Bay of Biscay.

43 The outer limits of these areas are as follows:

- to the E, the French coast;
- to the N, latitude 48° 40.0' N, between the coast and longitude 5° 55.5' W, then the line connecting positions 48° 40.0' N – 5° 55.5' W, 48° 20.0' N – 7° 00.0' W, 48° 20.0' N – 7° 30.0' W, 48° 00.0' N – 7° 48.0' W and 48° 00.0' N – 10° 00.0' W;
- to the W and to the S by the line connecting positions 48° 00.0' N – 10° 00.0' W, 46° 00.0' N – 10° 00.0' W, 46° 00.0' N – 8° 05.0' W, 45° 23.0' N – 8° 18.0' W, 43° 53.0' N – 4° 00.0' W, 43° 48.0' N – 2° 02.7' W, 43° 43.6' N – 1° 55.5' W, 43° 40.0' N – 1° 52.0' W and the French-Spanish border on the coast.

49 PROTECTION OF SUBMARINES. – With a view to protecting submarines, activities leading to the formation of fixed or mobile obstructions, more or less submerged, or producing underwater explosions, are announced with at least 48 hours' notice (*Guide du Navigateur [French Mariner's Handbook], volume* 3).

55 SUBMARINES AT ANCHOR. – It is prohibited for any vessel, boat or craft to berth alongside submarines anchored or at quay in roadsteads and ports without special authorisation.

01 **1.6.3.3. Mine hunting operations and practice**

07 Minefields (inert mines) may be anchored in the vicinity of the coast, at any point on the coast of the mainland.

13 Each of these minefields is valid for only a short time.

19 Mine hunters carrying out operations bear the marks and lights laid out by the *International Regulations for Preventing Collisions at Sea* for vessels restricted in their ability to manoeuvre (Rule 27). The attention of vessels that are too close is drawn using signals from the *International Code of Signals*.

25 Signals from the same code are also used when such vessels put divers into the water or let off underwater explosions (*Guide du Navigateur [French Mariner's Handbook], volume 3*).

01 **1.6.4. FIRING AREAS AND RANGES**

01 **1.6.4.1. General information**

07 Most firing areas, particularly those offshore, bear an international name: D16C, R13A, indicating their nature (D: dangerous; R: restricted).

13 Monitoring of the firing ranges is carried out by firing or observation vessels (and/or a semaphore), which hoist a red flag by day (flag BRAVO of the *International Code of Signals*) and display a red light visible over the entire horizon by night. Vessels not participating in the firing or the practice must avoid entering the areas in which firing has been announced (§ 1.6.3.1.). Those that find themselves within or entering the areas must maintain a permanent radio watch on VHF channel 16.

19 Plate 1.6.4.1. gives a general representation of the firing areas and ranges offshore and at the edge of the coasts from the tip of Brittany to the Spanish border.

25 In the sections below, the firing areas are described in the following order:
- offshore areas (§ 1.6.4.2.);
- coastal areas (§ 1.6.4.3.);
- firing range of the Centre d'essais de lancement de missiles [Missile Launching Test Centre] (CELM) [§ 1.6.4.4.].

31

[diagram]

FR	EN
R13A à C	R13A to C
Voir § 1.6.4.3.	See § 1.6.4.3.
Zone de tir Atlantique du Centre d'essais de lancement de missiles	Atlantic firing area of the Missile Launching Test Centre
NATURE DES TIRS: D16A/C/D/E: Mer/Mer, Mer/Air. D18D: Air/Air. Noirmoutier: Roquettes éclairantes par aéronefs. Boucau: Tirs d'infanterie. CELM: Tirs d'engins	NATURE OF FIRING: D16A/C/D/E: Sea/Sea, Sea/Air. D18D: Air/Air. Noirmoutier: illuminating rockets launched by aircraft. Boucau: infantry firing. CELM: missile firing.

1.6.4.1. – Firing areas. General presentation.

01 **1.6.4.2. Offshore firing areas**

07 VESSEL FIRING AREAS. – The following areas are used primarily for sea-sea and sea-air firing. They can also be used for air-sea firing:
- Gascogne area (D16A): circle with a radius of 15 M centred on 46° 09.58' N – 4° 46.53' W;
- Glénan area (D16C): circle with a radius of 15 M centred on 47° 24.38' N – 5° 28.33' W;
- Groix area (D16D): circle with a radius of 15 M centred on 46° 56.25' N – 3° 10.30' W;
- Ar Men area (D16E): circle with a radius of 15 M centred on 47° 21' N – 7° 36.70' W.

13 Under certain conditions, vessel firing can take place outside of these areas. Firing exercises are also announced by Notices to Mariners published five days in advance or by AVURNAV issued 24 hours before the firing exercise.

19 AIR-AIR FIRING AREA. – Armorique area (D18D) limited by the following positions: 46° 46' 57" N – 5° 00' 00" W; 47° 28' 44" N – 4° 05' 55" W; 47° 18' 02" N – 3° 47' 21" W; 46° 36' 14" N – 4° 42' 35" W.

25 CELM ATLANTIC FIRING AREA. – Plate 1.6.4.1. shows, for information purposes, the approximate limits of the area that may be used by the Centre d'Essais de Lancement de Missiles [Missile Launching Test Centre] (CELM) [formerly Centre d'Essais des Landes (Landes Test Centre)] for missile firing. This area is only activated three times a year, from Monday morning to Friday afternoon, excluding the month of August. Each activation is announced by a *Notice to Mariners* and by an AVURNAV, broadcast a long time in advance, specifying the dangerous area.

01 **1.6.4.3. Coastal firing areas**

04 "GÂVRES-QUIBERON" AREAS (R13A TO R 13C) [plate 1.6.4.3.A.]. – These three areas are used for ground-ground, ground-sea, sea-air and air-ground firing; they are defined as follows:

– R 13A area: limited by the coast and positions 47° 31' 49" N – 3° 09' 40" W; 47° 41' 10" N – 3° 21' 30" W;

– R13B area: limited by positions 47° 41' 10" N – 3° 21' 30" W; 47° 31' 49" N – 3° 09' 40" W; 47° 30' 49" N – 3° 08' 22" W; 47° 30' 03" N – 3° 08' 02" W; 47° 23' 21" N – 3° 15' 01" W; 47° 23' 21" N – 3° 25' 40" W; 47° 37' 14" N – 3° 25' 20" W; 47° 39' 20" N – 3° 24' 00" W;

– R13C area: limited by positions 47° 23' 21" N – 3° 25' 40" W; 47° 23' 21" N – 3° 15' 00" W; then the coast of Belle-Île and positions 47° 17' 40" N – 3° 11' 40" W; 47° 14' 00" N – 3° 08' 00" W; 47° 08' 52" N – 3° 26' 00" W;

– "R14" area (plate 1.6.4.3.A.). – This area, also known as "Le Bégo-Plouharnel", provided for Air/Ground firing, is limited, at sea, between positions 47° 34' 34" N – 3° 07' 00" W; 47° 32' 20" N – 3° 10' 20" W; 47° 36' 04" N – 3° 15' 02" W; 47° 37' 24" N – 3° 11' 56" W.

07

[diagram]

1.6.4.3.A. – Gâvres-Quiberon firing areas.

10 GÂVRES FIRING RANGE (plate 1.6.4.3.A.). – Managed by the French navy, the Gâvres firing range is limited:
- to the W, by the line connecting Pointe de Gâvres (47° 41' 10" N – 3° 21' 30" W) to positions 47° 31' 49" N – 3° 23' 40" W and 47° 14' 28" N – 3° 17' 38" W;
- to the S, by the straight line connecting positions 47° 14' 28" N – 3° 17' 38" W and 47° 14' 28" N – 3° 14' 22" W;
- to the E, by the straight line connecting positions 47° 14' 28" N – 3° 14' 22" W and 47° 18' 42" N – 3° 15' 12" W (Îles Baguenères), then the W coast of Belle-Île up to Pointe des Poulains (47° 23' 21" N – 3° 15' 12" W), finally the line connecting Pointe des Poulains to position 47° 26' 33" N – 3° 05' 35" W to Pointe de Beg er Lan (47° 28' 25" N – 3° 07' 47" W);
- to the N, by the W coast of Presqu'île de Quiberon up to Pointe de Gâvres.

13 *Decree 32/88 of 13 July 1988 of the Maritime Prefect of the Second Region* regulates maritime navigation in this firing range. It creates areas in which navigation is prohibited on certain days and at certain times that are published by means of AVURNAVs. The areas are defined below and shown on plate 1.6.4.3.A.

16 During firing exercises, red and white flags are hoisted on various poles distributed along the seafront of the firing range and a red flag (BRAVO from the *International Code of Signals*) on any patrol vessels working on VHF channel 6.

19 The area consists of a trapezoid, the four corners of which are: 47° 29' 00" N – 3° 19' 00" W; 47° 29' 30" N – 3° 16' 00" W; 47° 38' 12" N – 3° 15' 13" W; 47° 36' 42" N – 3° 24' 36" W; and a semi-circle with a radius of 6000 m centred on 47° 37' 25" N – 3° 19' 57" W (Basse du Guihel). Security is provided by a tug and if necessary by a helicopter (VHF channel 6).

22 The "Gâvres-Nord" and "Gâvres-Sud" sub-areas, provided for artillery firing and separated by latitude 47° 33' 30" N; the first is contained within bearings 148° and 188° originating from the signal mast of the firing range (47° 41' 45" N – 3° 20' 10" W), the second between bearings 148° and 170° originating from the same position, up to latitude 47° 29' 00" N (plate 1.6.4.3.A.).

25 Long-range firing from the coast and sea-sea firing may take place in the rest of the firing range.

28 Long-range firing exercises are announced by means of local Notices to Mariners that specify the extent of the area involved and the firing signals. Sea-sea firing generally takes place at the S limit of the "Gâvres-Nord" firing range.

31 BROADCASTING OF FIRING NOTICES. – CROSS ÉTEL broadcasts forecasts received on VHF (channel 13):
- normally on the day before at 08:30 and 14:30 (local time);
- for Mondays, on Saturdays at 08:30 and 14:30 and on Sundays at 14:30 (local time);
- for the day after a public holiday, two days before at 08:30 and 14:30 and on the day before at 14:30 (local time).

34 QUIBERON FIRING RANGE (table 1.6.4.3.B. and plate 1.6.4.3.C.). – This area is managed in the same way as the Gâvres firing range:

37 Firing towards the sea may be carried out from the Saint-Pierre-Quiberon firing range (observatory: 47° 30' 50" N – 3° 08' 30"W). This forms the subject of local *Notices to Mariners* that specify the dates and times of firing as well as the dangerous areas defined in the table below: it also forms the subject of VHF broadcasts by the CROSS Étel, in the same way as firing in the Gâvres range.

40

Name of the area	Type of firing	Limits
Quiberon ALPHA	Firing against armoured vehicles	To the N: line oriented to 290° from Beg an Aud. To the S: line oriented to 215° from Beg er Goalennec. To the W: arc of circle centred on the Saint-Pierre-Quiberon bell tower, with a radius of 8 M.
Quiberon ALPHA	Anti-aircraft firing	Anti-aircraft firing. Angular sector lying between the straight lines oriented to 225° and 298°, originating from the Saint-Pierre-Quiberon bell tower, and an arc of circle with a radius of 12 M. To the N: line passing through the Saint-Pierre-Quiberon bell tower and Pointe de l'Enfer (Île de Groix)
Quiberon CHARLIE	Firing towards Île de Groix	To the S: line passing through the Quiberon semaphore and a point in position 180° at a distance of 3 M from Pointe de l'Enfer. To the E and W: arcs of circles with radiuses of 16 km and 28 km respectively, centred on the Saint-Pierre-Quiberon bell tower.
Quiberon DELTA	Firing towards Belle-Île	To the E: line passing through the Quiberon semaphore and the Pointe des Poulains lighthouse (Belle-Île). To the W: line passing through Beg an Aud and a point in position 000° at a distance of 3 M to the NW of this lighthouse. To the SW: arc of circle with a radius of 28 km centred on the Saint-Pierre-Quiberon bell tower. To the NE: by the W coast of Presqu'île de Quiberon

1.6.4.3.B. – Firing areas (Quiberon firing range)

43 FIRING SIGNALLING:

46 BY DAY. – A red flag is hoisted one hour before the firing begins: on the firing range tower (47° 30' 50" N – 3° 08' 30" W), on the semaphores of Fort Saint-Julien (Quiberon) and Taillefer (Belle-Île) and on the Pointe des Chats (Île de Groix) lighthouse. Two blasts of the warning cannon (blank shots) are fired, the first one hour, the second half an hour before each session of firing begins.

49 BY NIGHT. – Two red lights are lit at the top of the firing range tower, one hour before the exercise starts and until the end of the firing. Two white flares are launched, the first one hour, the second half an hour before each session of firing begins. A green flare signals the end of the firing.

52 FIRING TOWARDS ÎLE DE GROIX. – In addition to the provisions above, a red flag is hoisted for daytime firing exercises on the Beg-Melen semaphore on Île de Groix.

55 FIRING TOWARDS BELLE-ÎLE.

58 BY DAY. – A red and white ball is displayed, from the day before at 16:00 until the end of the firing, on the firing range's observatory. Red flags are hoisted on the Taillefer and Fort Saint-Julien semaphores for the duration of the firing exercises. Two blasts of the warning cannon are fired, the first one hour and the second half an hour before the firing begins.

61 BY NIGHT. – The Taillefer and Fort Saint-Julien semaphores raise two red flags during the day before the firing. From sunset until the end of the firing, two red lights are lit on the firing observatory and a white flare is launched every hour by the firing range's observatory.

64 BELLE-ÎLE FIRING AREA (plate 1.6.4.3.C.). – This area is managed in the same way as the Gâvres firing range.

67 The Belle-Île sea-sea firing area is delimited by the line connecting the following positions: 47° 23'00" N – 3° 23' 00" W; 47° 24' 30" N – 3° 18' 30" W; 47° 14' 00" N – 3° 08' 00" W; 47° 10' 00" N – 3° 22' 00" W.

70 There is a yellow mooring buoy, "B1", used as a target, anchored at 47° 17.1' N – 3° 16.4' W.

73 Firing is announced by local *Notices to Mariners*.

76 Safety in the firing range is guaranteed by the firing vessel; it raises a red flag (flag B of the *International Code of Signals*) by day, and a red light at the top of a mast by night.

79

[diagram]

FR	EN
Cible	Target

1.6.4.3.C. – Quiberon and Belle-Île firing areas.

82 NOIRMOUTIER AREA. – This area, used by aircraft for firing of flare rockets, lies between latitudes 46° 50' N and 47° 11' N and longitudes 2° 20' W and 2° 45' W. Its activation forms the subject of an AVURNAV.

85 BOUCAU FIRING RANGE (*Decision 3843/4e RM/INS/ACT of 30 August 1979 of the General Commander of the Fourth Military Region*). – A dangerous area, in the extension of a firing range for light infantry weapons, the stop-butt of which is located 1 M to the NE of the mouth of the Adour, extends up to 4200 m to the N of this butt and 1800 m off the beach at this N end. This dangerous area is marked on the charts.

88 From 16 September to 30 June, firing takes place every day, except on public holidays, from 06:00 to 16:00; from 1 July to 15 September, firing only takes place one day a week. The schedule is communicated 10 days beforehand to the Bayonne Maritime Affairs service. 5 m pylons surmounted by a red pennant are positioned 2 hours before each firing session, at around 1200 m and 2500 m to the NNE of the stop-butt.

01 **1.6.4.4. Firing range and Centre d'essais de lancement de missiles [Missile Launching Test Centre] (CELM) [formerly Centre d'Essais des Landes (Landes Test Centre)]**

07 An area, used by the Centre d'essais de lancement de missiles [Missile Launching Test Centre] (CELM), the Cazaux airbase and the Flight Test Centre, extends off the coast of Landes from a line located 3 M from the coast, except for three sectors connecting it to the coast. It is limited:
- to the N, by the straight line oriented to 065° from position 45° 12' N – 2° 00' W;
- to the W, by the straight line connecting positions 45° 12' N – 2° 00' W and 44° 00' N – 2° 25' W;
- to the S, by the straight line oriented to 115° from position 44° 00' N – 2° 25' W
- to the E, by the line parallel to the coast and 3 M off it, outside of the following sectors in which the limit extends as far as the coast.

13 The three sectors connecting this area to the coast are:
- sector 31 H between latitudes 45° 09' N and 45°14' N;
- sector 31 K between latitudes 44° 28' N and 44° 31' N;
- sector 31 A between latitudes 44° 13' N and 44° 28' N. This sector extends offshore up to 12 M from the coast (Biscarosse sector).

19 The area and its division into sectors are shown on plate 1.6.4.4. The process for designating the offshore sectors makes it possible to identify them from their limits in nautical miles counted from the coast, the indications N and S following number 31, which define the area, situating the sectors to the N or S of the entrance to Bassin d'Arcachon.

25 ACTIVITY. RESTRICTIONS TO NAVIGATION. DANGERS. – Firing takes place all year round in the area. However, the sectors are never all activated simultaneously; in particular, access to Arcachon remains possible, except in very exceptional cases.

31 Navigation may be prohibited in the sectors located within territorial waters.

37 The sectors located outside of the territorial waters may be declared dangerous to navigation. In particular, navigation is dangerous in sectors 31 N 12-27 and 31 S 12-27 every working day from 08:00 to 18:00 (service hours) [Cazaux airbase air-air firing area]. Vessels are officially advised against entering these sectors given the particularly dangerous nature of the tests that are being carried out within them.

43 The most used sector is sector 31 A, off the on-land facilities of the CELM Missile Launching Test Centre. The prohibition on navigating in all or part of this sector is signalled, by day only, in the following manner:
- on the coastal dune, a pylon to the N of the sector (44° 26' 25" N – 1° 15' 18" W) bears a white ball with a 2 m diameter;
- a pylon to the S of the sector (44° 13' 52" N – 1° 17' 34" W) bears two white balls with a 2 m diameter placed one above the other.

49 NAVIGATIONAL INFORMATION. – The weekly "notices of firing in the Landes area" form the subject of AVURNAV BREST. Daily information regarding the areas used by the CELM is broadcast by CROSS Étel on VHF channel 79, at 07:33 UTC for the day in progress and at 18:03 UTC for the following day.

55 This information can be consulted or obtained from the Socoa and Ferret semaphores, from the region's Maritime Affairs service and from the answering machines on numbers

+33 (0)5 58 82 22 42 and +33 (0)5 58 82 22 43. The CELM maintains a radio watch on VHF channels 6 and 16 from 08:00 to 17:00 from Monday to Thursday and on Fridays during the same hours when the firing range is activated.

61 BEACONAGE. – The CELM area comprises a wave recorder light buoy (44° 22.51' N – 1° 25.30' W), a mooring buoy used to moor targets (44° 22.9' N – 1° 25.6' W) and a target light buoy (44° 20.3' N – 1° 28.6' W).

67 PROHIBITED AREA. – Navigation by all vessels and craft is prohibited around the CELM mooring buoy, in an area limited by latitudes 44° 23.57' and 44° 21.97' N and by longitudes 1° 24.72' and 1° 26.22' W (*Decree 2001/45 of 18 July 2001 of the Maritime Prefect of the Atlantic*).

73

[diagram]

1.6.4.4. – Area of the Centre d'essais de lancement de missiles [Missile Launching Test Centre] (CELM).

01 **1.6.5. NATURE RESERVES**

01 **1.6.5.1. Reserves of the Society for the Study and Protection of Nature in Brittany (SEPNB)**

07 There are quite a few islands and islets off the coasts of Brittany that constitute protected sites for the development of certain species of animals, particularly birds.

13 Access to these islands and islets is restricted, or even prohibited, at certain times of the year, especially at nesting times. Prohibitions are specified in the section describing the sites concerned.

19 The following reserves are the largest ones:
- Koh Kastell (Le Camp de César), on Sauzon (W coast of Belle-Île) [§ 3.2.2.];
- Île Glazik, Île Valuec, Île Guric and Île Séniz (WNW of Île de Houat) [§ 3.3.2.7.];
- Îlot Er Yoc'h (E of Île de Houat) [§ 3.3.2.7.];
- Islets and reefs at the entrance and within Golfe du Morbihan (§ 3.5.2.5.);
- Îlot de Pierre-Percée (approaches to Pornichet) [§ 4.2.2.8.].

01 **1.6.5.2. Other nature reserves**

07 ANSE DE L'AIGUILLON. – This cove, located to the E of Pertuis Breton, is classed as a nature reserve, under the name "Aiguillon Bay Nature Reserve" (*Decree 96-613 of 9 July 1996 and 99-557 of 2 July 1999)* [§ 5.4.2.4.].

13 ÎLE DE RÉ. – The "Lilleau des Niges Nature Reserve" occupies the NW part of Fier-d'Ars (*Decree 80-136 of 31 January 1980*) [§ 5.4.2.4.].

19 COUREAU D'OLÉRON. – The largest part of Coureau d'Oléron is classed as a nature reserve under the name "Moëze Marshes Nature Reserve" (*Decree 85-686 and 687 of 5 July 1985*) [§ 5.9.2.5.].

25 BANC D'ARGUIN, ARÈS AND LÈGE CAP-FERRET, DUNES AND MARSHES OF HOURTIN. – Nature reserves situated in Bassin d'Arcachon and on the coast of Landes (§ 6.6.2.6.).

01 **1.6.6. NAVIGATIONAL WARNINGS**

07 Like meteorological bulletins and associated notices (§ 1.2.9.) and other urgent safety messages, navigational warnings form part of the maritime safety information (RSM) broadcast as part of the global maritime distress and safety system (GMDSS) (see the *Guide du Navigateur [French Mariner's Handbook], volume 3* or the publication *Radiocommunications maritimes [Maritime Radio Communications], volume 4*).

01 **1.6.6.1. Broadcasting of navigational warnings**

07 NAVAREA II area warnings are broadcast by INMARSAT SafetyNET.

13 Coastal navigational warnings (coastal AVURNAV) broadcast by the CROSS Étel NAVTEX stations (international: 518 kHz, national: 490 kHz) cover this entire area. CROSS Étel also broadcasts coastal AVURNAV via HF radio telephone.

19 Urgent Notices to Mariners that are valid locally (local AVURNAVs) are broadcast on VHF by the semaphores (§ 1.4.8.1).

25 Notices to Mariners (NMs) are broadcast by the regional coastal press and displayed in port information offices (harbour master's office, port office, etc.).

31 AVURNAVs (coastal and local) and NMs may be consulted on the website of the Maritime Prefecture of the Atlantic (www.premar-atlantique.gouv.fr). The information presented on this site is updated periodically. It may therefore not be up to date at the time of consultation and therefore merely complements the information broadcast by official means (display in harbour master's offices, broadcast by NAVTEX or by VHF, etc.).

01 **1.6.6.2. SHOM radio signal publications**

07 The publication *Radiocommunications maritimes [Maritime Radio Communications], volume 1* provides the list of coastal radio stations broadcasting navigational warnings for the area covered by this volume, and specifies for each of them the frequencies or channels used, the types of transmission and the hours of operation.

13 The *Répertoire des radiosignaux à l'usage du petit cabotage, de la pêche et de la plaisance [List of Radio Signals for use by Small Coasters, Fishing and Leisure Vessels]* provides, for certain maritime areas, and particularly for the Atlantic, information relating to the broadcasting of navigational warnings by NAVTEX and radio telephone (VHF and SSB).

01 **1.7 ROUTES**

07 Chart *7211.*

13 ENC *FR200010.*

19 From Pointe de Penmarc'h to Cabo Ortegal, the Bay of Biscay has a 260 M-wide opening to the NW and extends in a SE direction over 240 M. The coasts described in this publication and the adjoining maritime areas are used by a large number of vessels. The maritime routes, irrespective of whether they are deep-sea or coastal routes, are subject to meteorological conditions in which the permanent swells of the Atlantic often create difficult navigational conditions when they head in the opposite direction of the wind sea (§ 1.3.6.). For vessels with a low tonnage, routes must be chosen by taking into account the meteorological conditions, especially in winter.

01 **1.7.1. RADIO ELECTRIC AIDS TO NAVIGATION**

07 See section 1.6.1.

01 **1.7.2. DIRECT ROUTES**

07

[diagram]

1.7.2. – Direct routes – Bay of Biscay.

01 **1.7.3. LANDFALL AREAS BETWEEN THE SW END OF BRITTANY AND THE SPANISH BORDER**

07 The main landfall areas between the tip of Brittany and the Spanish border are those of Pointe de Penmarc'h, Belle-Île, Île d'Yeu and the mouth of the Gironde.

01 **1.7.3.1. Landfall on Pointe de Penmarc'h**

07 **Pointe de Penmarc'h** is low-lying and foul. It bears the **Eckmühl** lighthouse (47° 47.9' N – 4° 22.4' W), a grey octagonal tower (65 m) with the tower of the old lighthouse and the semaphore (view 1.7.3.1.) standing in its vicinity to the W. The areas surrounding this headland are described in section 2.2.3.1.

13

[photo]

Lighthouse Old lighthouse Semaphore

1.7.3.1. – Pointe de Penmarc'h, to the SE.

19 In foggy weather sounding may provide a good indication of the position, in addition to the radio electric means. The 100 m isobath passes 8 M to the SW of the Eckmühl lighthouse. Radar echoes are good over Pointe de Penmarc'h.

01 **1.7.3.2. Landfall on Belle-Île**

07 **Belle-Île** is an excellent landfall area for vessels heading for Lorient or the mouth of the Loire.

13 Viewed from the open sea, the island appears as a long horizontal cliff, 40 to 50 m high, dominated by the **Goulphar** lighthouse (view 1.7.3.2.), a grey tower with a red lantern (52 m) located on the SW corner of the island (47° 18.7' N – 3° 13.5' W). The details of the coast are described in sections 3.2.4. and 3.2.5.

19

[photo]

1.7.3.2. – Belle-Île. Goulphar lighthouse, to the E.

25 In foggy weather, vessels can look out for the 100 m and 50 m isobaths using their sounders. These isobaths pass at minimum distances of 15 M and 1.5 M from the island respectively.
31 Belle-Île provides good radar echoes.

01 **1.7.3.3. Landfall on Île d'Yeu**
07 Île d'**Yeu** is the usual landfall point for vessels coming from the SW and heading for the mouth of the Loire. It is also an essential reconnaissance point for vessels that, coming from the NW, are heading towards La Rochelle-Pallice and the estuary of the Gironde and that must avoid Plateau de Rochebonne (§ 1.7.3.4.).
13 The main landmark of Île d'Yeu is the lighthouse (46° 43.1' N – 2° 22.8' W), a square white tower with a green lantern (38 m) located near the W end of the island (view 1.7.3.3.). 1 M to the ENE of the lighthouse, a white water tower (50 m) is also conspicuous. The coast is described in sections 5.2.6. and 5.2.7.
19

[photo]

1.7.3.3. – Île d'Yeu lighthouse, to the E.

01 **1.7.3.4. Plateau de Rochebonne**
07 Chart *7069.*
13 ENC *FR302070.*
19 The Rochebonne plateau (46° 12' N – 2° 27' W, centre), located around 30 M to the S of Île d'Yeu, constitutes a danger, particularly for vessels heading for La Rochelle-Pallice or the estuary of the Gironde. Over the plateau and its approaches, the sea is often very rough and in bad weather it whips up dangerous waves.
25 It forms a massif projecting over the 50 m isobath, around 6 M long, in a NW-SE general direction and 1 M wide. The plateau has several heads. **Roche la Congrée** (46° 12.4' N – 2° 30.0' W), located near the NW end in 3.3 m of water, and **Pierre Levée**, in the middle of the plateau, in 4.1 m of water, are the least covered ones.

01 **1.7.3.4.1. Tide and currents**
07 High water and low water over Plateau de Rochebonne take place around 5 minutes earlier than those at Les Sables-d'Olonne. The tidal range is around 90% of that of the port of reference. The characteristics of the current are listed in table 1.7.3.4.1.
13

Time	Direction	Speed at springs
– 0600 HW Les Sables-d'Olonne	340°	0.7 knots
– 0300 HW Les Sables-d'Olonne	080°	1.3 knots
HW Les Sables-d'Olonne	180°	0.6 knots
+ 0300 Les Sables-d'Olonne	230°	1.1 knots

1.7.3.4.1. – Tidal current over Plateau de Rochebonne.

01 **1.7.3.4.2. Beaconage**

07 The plateau is marked by four light buoys with radar reflectors: the "Rochebonne NO" W cardinal buoy to the NW, the "Rochebonne SE" E cardinal buoy to the SE, the "Rochebonne NE" starboard lateral buoy to the NE, and the port lateral "Rochebonne SO" port lateral[2] buoy to the SW.

01 **1.7.3.4.3. Areas to be avoided. Directions**

07 An area to be avoided by vessels transporting oil covers Plateau de Rochebonne (§ 1.7.3.4.).

01 **1.7.3.5. Landfall over Estuaire de La Gironde**

07 In clear weather, the **La Coubre lighthouse** (45° 41.8' N – 1° 13.9' W), a white truncated conical tower with a red top (65 m), appears against a backdrop of greenery, with an old semaphore in the background. Located 7 M to the SSE, the **Cordouan lighthouse** is a white tower on a grey base (68 m) [view 1.7.3.5.]. Vessels make landfall on the "BXA" safe water mark light buoy with Racon, anchored 11 M to the WSW of the La Coubre lighthouse.

13 In foggy weather, sounding provides a precise indication of longitude. The 100 m isobath passes at a distance of 45 M from the La Coubre lighthouse and the 50 m isobath at a distance of 20 M from this lighthouse.

19 The mouth of the Gironde is described in section 6.2.

25

[photos]

1.7.3.5. – Estuaire de la Gironde, main landmarks.

[2] Translator's note: "port lateral" repeated in source.

01 # 1.8. DISTANCES BETWEEN PORTS ON THE W COAST OF FRANCE

07 The distances (M) between the main ports on the W coast of France (from Brest to Hendaye) are shown in table 1.8. below.

13 They are measured between the access passages to the ports or, if applicable, between the pilot boarding positions.

19 They do not represent the shortest distances between the ports but the distances obtained on routes offering a reasonable degree of safety.

25

	ARCACHON	BAYONNE	BORDEAUX	BREST	CAPBRETON	CONCARNEAU	COTINIÈRE, LA	CROISIC, LE	CROUESTY, LE	ÉTEL	GUILVINEC, LE	HENDAYE	HERBAUDIÈRE, L'	LOCTUDY	LORIENT	NANTES	PALAIS, LE	PORNIC	PORT-HALIGUEN	PORT-JOINVILLE	ROCHEFORT	ROCHELLE, LA	ROYAN	SABLES D'OLONNE, LES	SAINT-GILLES-CROIX-DE-VIE	SAINT-JEAN-DE-LUZ	SAINT-NAZAIRE	TRINITÉ-SUR-MER, LA	TURBALLE, LA
BAYONNE	77																												
BORDEAUX	126	184																											
BREST	291	338	292																										
CAPBRETON	65	72	173	328																									
CONCARNEAU	258	270	237	76	275																								
COTINIÈRE, LA	103	145	81	222	135	163																							
CROISIC, LE	201	244	192	135	237	76	115																						
CROUESTY, LE	193	247	189	116	241	64	143	22																					
ÉTEL	211	265	208	100	260	43	161	44	27																				
GUILVINEC, LE	210	281	242	55	276	19	178	85	64	48																			
HENDAYE	86	20	192	344	24	283	155	255	253	271	256																		
HERBAUDIÈRE, L'	171	214	162	147	207	69	85	22	42	54	96	225																	
LOCTUDY	212	283	244	64	278	12	180	87	66	50	10	258	98																
LORIENT	214	268	211	102	263	35	164	50	33	11	73	274	57	75															
NANTES	212	255	103	176	248	118	126	48	68	86	125	266	41	127	92														
PALAIS, LE	188	242	185	106	237	51	138	25	16	20	57	248	31	59	26	68													
PORNIC	181	224	172	152	217	77	95	26	46	68	103	235	10	105	71	51	45												
PORT-HALIGUEN	195	249	192	115	244	60	145	27	9	22	61	255	44	63	28	70	13	48											
PORT-JOINVILLE	152	195	143	156	188	101	66	50	56	71	103	206	20	105	77	52	51	29	58										
ROCHEFORT	126	159	118	250	172	182	40	131	137	152	182	189	101	185	158	142	134	111	139	82									
ROCHELLE, LA	109	142	101	235	155	167	23	116	121	136	167	172	86	169	142	127	119	96	123	67	38								
ROYAN	75	133	51	241	122	186	30	141	146	161	186	141	111	188	167	152	142	121	148	92	67	50							
SABLES D'OLONNE, LES	130	184	120	183	170	128	41	76	86	101	128	189	44	130	107	85	80	54	88	27	55	38	69						
SAINT-GILLES-CROIX-DE-VIE	142	196	132	172	182	115	55	66	69	84	115	201	30	117	90	71	65	40	71	17	67	50	81	15					
SAINT-JEAN-DE-LUZ	82	16	191	340	22	287	153	251	241	259	287	7	221	289	262	262	343	231	243	202	188	171	140	187	199				
SAINT-NAZAIRE	186	229	177	150	222	92	100	22	42	60	99	240	15	101	66	26	42	25	44	36	116	101	126	59	45	246			
TRINITÉ-SUR-MER, LA	198	252	195	116	247	64	148	30	6	26	64	258	47	66	32	73	16	51	7	61	142	126	151	91	74	246	47		
TURBALLE, LA	204	247	195	133	240	76	118	3	24	37	81	258	25	83	43	51	27	29	26	52	134	119	144	79	69	254	25	25	
VANNES	202	256	198	125	250	73	152	31	9	36	73	262	51	75	42	68	25	55	18	65	146	130	155	95	78	250	51	13	34

1.8. – Distances (in M) between the ports on the W coast of France.

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CHAPTER 2

FROM POINTE DE PENMARC'H TO PRESQU'ÎLE DE QUIBERON

13 Charts *7211* and *7067*.
19 ENC *FR200010* and *FR370670*.
25

[diagram]

2. – Map of the chapter.

01 2.1. GENERAL INFORMATION

07 From Pointe de Penmarc'h to Pointe de Trévignon, the coast is low-lying, with islands (Îles de Glénan), islets and reefs lying off it. It houses the coves of Bénodet and Concarneau.

13 From Pointe de Trévignon to Pointe du Talut, the estuaries of the rivers (Aven and Belon, Laïta) are enclosed by the coast, which is for the most part sheer.

19 Between Pointe du Talut and the Quiberon peninsula, the entrance to Rade de Lorient is protected by Île de Groix from the swells from the SW. The shared rivers of the Scorff, Blavet and Étel are enclosed by a rather low-lying coast. Farther E, the coast consists of dunes and has shoals lying off it as far as Presqu'Île de Quiberon.

01 2.1.1. LANDFALL

07 The coast has islands lying off it for the most part, which make it easy to recognise: Îles de Glénan, Île de Groix and Belle-Île. Vessels coming from the S and SW heading for Raz de Sein, make landfall on Pointe de Penmarc'h (§ 1.7.3.1.), vessels coming from the same directions and heading towards Lorient make landfall on Belle-Île (§ 1.7.3.2.).

01 2.1.2. CURRENTS

07 References:
- chart tables showing the characteristics of the tidal currents;
- the atlases *Courants de marée de la côte Ouest de Bretagne, de Goulven à Penmarc'h* [Tidal currents of the W coast of Brittany, from Goulven to Penmarc'h], and *Courants de marée de la côte Sud de Bretagne, d'Audierne au Croisic* [Tidal currents of the S coast of Brittany, from Audierne to Le Croisic].

13 The currents are rotary, very variable depending on the tide, the meteorological conditions and the orientation of the coast. Their speeds do not exceed 2 knots, except in the approaches to the rivers.

01 2.1.3. PORTS AND HAVENS

07 Lorient, a commercial port of national importance, and Concarneau are the two major ports described in this chapter. Numerous other well-equipped fishing ports and marinas constitute good havens located in the coves at the mouth of the rivers.

13 Île de Groix and Belle-Île constitute excellent havens for all vessels.

01 2.1.4. RESTRICTED AREAS

07 Numerous restricted areas, exercise areas and firing practice areas for French navy vessels are located in this sector. These areas are described in section 1.6 of the publication.

01 2.1.5. CAUTIONARY ADVICE

07 Coastal fishing represents an important activity in this area. Vessels in transit should be prepared to encounter concentrations of fishermen.

13 The wind regime, which is often disturbed during the passing of Atlantic disturbances, should encourage small sailing vessels and leisure craft to choose coastal routes so that they can rapidly reach one of the ports on the coast.

01 2.2. FROM POINTE DE PENMARC'H TO LESCONIL

01 2.2.1. GENERAL INFORMATION

07 Chart *7146*.

13 ENC *FR471460*.

19 The coast, which has reefs lying off it, is very exposed to the rough weather from the SE to the NE by W. When rounding Penmarc'h at a distance of around ten miles, vessels encounter the offshore swell, which is preferable to the surging sea that rages near land.

01 2.2.1.1. Signal station

07 Penmarc'h, lookout station (47° 47.9' N – 4° 22.4' W) [§ 1.4.7.2.].

01 2.2.1.2. Rescue stations

07 Le Guilvinec (47° 47.6' N – 4° 17.3' W); Loctudy (47° 50.2' N – 4° 10.2' W).

01 2.2.1.3. Tidal currents

07 The currents are very susceptible to the influence of the winds. See also the chart tables, the atlases *Courants de marée de la côte Ouest de Bretagne, de Goulven à Penmarc'h* [Tidal currents of the W coast of Brittany, from Goulven to Penmarc'h], and *Courants de marée de la côte Sud de Bretagne, d'Audierne au Croisic* [Tidal currents of the S coast of Brittany, from Audierne to Le Croisic].

01 2.2.2. AREAS

01 2.2.2.1. Marine farms

07 An area for the farming of weed, mussels and oysters, on lines, is located in the approaches to Kérity 0.6 M to the SSE of the Locarec light (47° 47.3' N – 4° 20.3' W); it is shown on the chart and marked at its four corners by special mark buoys with retro-reflective stripes.

13 An area for weed farming on lines, with 200 m-long sides, marked on the chart, is located 1.5 M to the ENE of the "Lost-Moan" beacon tower (§ 2.2.4.1.).

01 2.2.2.2. Obstructions

07 Old mussel farms, the limits of which are marked on the chart, are located 0.5 M to the WSW of the Men Meur rock, W of Guilvinec. They contain obstructions consisting of 0.80 m-high deadmen with a diameter of 1.50 m.

01 2.2.2.3. Explosives temporary dumping ground

07 A circular area with a radius of 200 m, used for the temporary dumping of suspect devices caught by fishing nets or equipment (§ 1.6.2.5.), is located around position 47° 45.36' N – 4° 16.29' W.

01 2.2.2.4. Anchoring prohibited

07 Anchoring is prohibited within the areas centred on the access channels to the ports of Guilvinec-Léchiagat and Lesconil and extending up to the entrance to these ports. These two areas are defined respectively in sections 2.2.4.2. and 2.2.5.1.

01 2.2.3. FROM POINTE DE PENMARC'H BEYOND LESCONIL

07 Charts *6645*, *6646* and *7146*.

13 ENC *FR471460*.

01 **2.2.3.1. Coast, landmarks and anchorages**

07 **Pointe de Penmarc'h** (47° 47.8' N – 4° 22.5' W) is low-lying, and its approaches are foul. It bears the **Eckmühl** lighthouse, described in section 1.7.3.1. and, in its immediate vicinity, an old lighthouse and a semaphore.

13 The outline of the dangers that lie off Pointe de Penmarc'h is marked, from NW to S, by the "**Basse Gaouac'h**" starboard lateral light buoy, the "Men Hir" black beacon tower with a white stripe that bears a sector light, and the "Cap Caval" W cardinal light buoy. Detached rocks, which are barely covered, lie N and S of the "**Men Hir**" beacon tower.

19

[photo]

2.2.3.1. – Pointe de Penmarc'h, to the SE.

25 **Port Saint-Pierre**, a small creek at the foot and to the S of the Eckmühl lighthouse, is only accessible to the small fishing vessels of local mariners. The port has a slipway protected to the SW by a detached breakwater. The end of the slipway and the SE end of the breakwater each bear a port lateral beacon. The bottom of mud uncovers 2.7 m in the middle of the port.

31 1.3 M SSE of the lighthouse, the **La Jument** uncovering shoal has dangerous rocks lying off it to the SSE.

37 Off **Le Guilvinec**, a starboard lateral light buoy marks **Basse Nevez**, on the edge of the channel that leads to the port. SE of this buoy, the "Spineg" S cardinal light buoy marks **Basse Spineg** and to the SSE of the port, a S cardinal beacon tower marks the **Ar Guisty** plateau (47° 45.7' N – 4° 15.5' W). **Men Korn**, a rock covered by 3.8 m of water, is located 0.4 M to the SSW of this beacon tower.

43 To the ESE of Lesconil, 1.8 M from the port entrance, the **Karrek kreiz** isolated rock is marked to the SE by an E cardinal light buoy.

49 The port of Kérity, located 0.8 M E of the Eckmühl lighthouse, is described in section 2.2.3.2.

55 Vessels navigating along the coast can recognise the church of Penmarc'h, then on the SW headland of Le Guilvinec, the conspicuous group formed by the whitened **Men Meur** rock (47° 47.6' N — 4° 17.6' W), a castle and a small wood.

61 At Le Guilvinec, the following are particularly conspicuous: the church and the white rectangular tower with a red top and a vertical red stripe in the middle (25 m) of the rear lighthouse of the leading line, and a chimney 600 m to the WSW of the church.

67 The port of Guilvinec-Léchiagat is described in section 2.2.4.

73 The bell towers of **Tréffiagat** and **Plobannalec** are visible inland, to the E of Le Guilvinec, and near the shore, in Lesconil, the white house of the old semaphore, near a large pyramid beacon, the water tower and the bell tower are also visible. The whitened **Énizan** rock (7.2 m) is at the S end of the dangers that enclose **Anse de Lesconil** to the E.

01 **2.2.3.2. Kérity**

07 Kérity (47° 47.8' N – 4° 21.0' W), a fishing port and marina, located 0.8 M E of the Eckmühl lighthouse, is accessible at high water only. It is used by vessels with a maximum gross tonnage of 50. It is accessed via **Chenal de Pénarguer**, which leads between the "Raguen" S cardinal beacon and the "Men Ar Leuren" starboard lateral light beacon, then between the Locarec rock light beacon tower and the Men Hir rock light beacon. The end of the stockade, E of the port, bears a light.

13

[photo]

2.2.3.2. – Kérity, to the NW (2006).

19 *Vessels use the Poul Bras holding anchorage to the SE of the Locarec rock, in 3.8 to 4.8 m of water, over a bottom of sand. It provides very good shelter in winds from the NE to the S by N and W. Vessels may also anchor in 1.8 to 2.8 m of water to the W of the Locarec rock.*

25 The dry harbour, protected to the S by a detached breakwater, includes a 200 m-long mole, to the W, and a 450 m-long angled stockade, to the E, at the end of which vessels can berth. It has 160 anchorage berths for leisure vessels. A trench dredged to 0 m extends between the heads of the mole and the stockade.

31 The port has a fish market. Water and electricity on the mole, for fishing vessels only.

01 **2.2.4. GUILVINEC-LÉCHIAGAT**

07 Chart *6646*.

13 The departmental port of **Guilvinec-Léchiagat** (view 2.2.4.4.) is used mainly by fishing vessels. Access to it is difficult in strong winds from the W to the WSW, which cause a considerable backwash. In strong SE winds, the channel becomes dangerous during the last two hours of the ebb, with the sea breaking over **Basse aux Herbes** and **Pen Men Ham**, rocks that are covered by 1.8 and 4.3 m of water respectively.

19 The appearance of the coast is described in section 2.2.3.1.

01 **2.2.4.1. Access**

07 The entrance to the channel is located 2.5 M to the SW of the entrance to the port. The axis of the channel is shown by the leading lights on a bearing of 053° of the three lights located on the E shore of the port. The front and middle lights are borne by white pylons. The rear light is borne by a white rectangular tower with a vertical red stripe in the middle that is surmounted by a red cylinder. By day, the visibility of this leading line is improved by two large red cylindrical topmarks, one located on a red support in the vicinity of the middle light, the other at the top of the tower of the rear light.

13 The leading line successively passes near the "Névez" starboard lateral light buoy, the "Men ar Leuren" port lateral light beacon and the "Capelan" starboard lateral light buoy. It also passes over Basse aux Herbes, covered by 1.8 m of water, and over a rock covered by 1.7 m of water located 200 m

to E of the "Rousse ar Men Du" beacon tower. The width of the channel is reduced to around 40 m from the "Capelan" buoy. The other dangers in the approaches to Le Guilvinec are covered by the coloured sectors of the **Locarec** rock and **Lost-Moan** lights, located respectively 2.1 M to the W and 0.6 M to the SE of the entrance to the port, as well as by the green sector of the middle light of the Le Guilvinec leading lights on a bearing of 053°.

19 The entrance to the port is sometimes subject to silting up.

01 **2.2.4.2. Areas in which anchoring is prohibited**

07 Anchoring by any vessel or craft is prohibited in the area defined below, as is the positioning of any equipment, particularly that used for fishing (*Decree 13/95 of 20 March 1995 of the Maritime Prefect of the Atlantic*):
- from the "**Men Du**" beacon tower to the "**Rousse ar Men Du**" beacon tower;
- from the "**Capelan**" buoy to the "**Le Groaik**" beacon tower;
- from this beacon tower towards the light on the head of the Léchiagat mole as far as the official limit of the port, to the S and to the E;
- from the line connecting the "Men Du" and "Rousse ar Men Du" beacon towers, over a width of 20 m on both sides of the leading line on a bearing of 053°, as far as the "Basse Névez" buoy.

13 Within the limits of the port, the general regulations for navigational policing apply, which prohibit anchoring in the passages and stipulates that vessels must not hinder the navigation of other vessels.

01 **2.2.4.3. Regulations**

07 The speed of vessels and craft is limited to 3 knots inside the port. All vessels entering the port must maintain a radio watch on VHF channel 12 (Guilvinec-Port).

13 The quay off the fish market is reserved for trawlers waiting to unload. At the W end of this quay, a 30 m-long berth is reserved for urgent movements (for sanitary reasons, for instance). Prolonged stopping is prohibited at this berth. The other berths on the quay are allocated by the harbour master's office (Guilvinec-Port).

19 Leisure vessels are prohibited from carrying out entry and exit movements, except in the event of *force majeure*, during the arrival times of coastal trawlers (between 16:00 and 18:30). Berthing is also prohibited for these vessels at the quay and alongside the trawlers, except in the event of an emergency.

01 **2.2.4.4. Port**

07 The fishing port comprises, from W to E:

13 a) Rive Guilvinec:
- a quay for coastal fishing vessels, oriented N-S, 35 m long in 5 m of water,
- the fishing market quay, reserved for the unloading of fish, 293 m long in 5 m of water,
- in the extension of this quay, a quay reserved for stopping, 462 m long in 3 m of water,
- a pontoon for the exclusive use of professional fishermen;

19 b) Rive Léchiagat:
- two quays of a total length of 316 m in 3 m of water,
- a pontoon for the exclusive use of professional fishermen.

25 The two shores are connected by a bridge with a vertical clearance of 7.4 m.

31 RESOURCES. EQUIPMENT. – Water and electricity on the quays; fuel and oils at the fuel station berth on the Le Guilvinec quay; fuel on the Léchiagat shore, at Quai Faoutès; ice (reserved for fishing).

37 350 t lift, 15,000 m^2 careening area, 11 craft for unloading fish; water and electricity; two building yards for vessels of wood and steel; workshops for mechanical and marine engine repairs.

43 The leisure area, where works are in progress, located at the end of the fishing port, offers 210 anchor berths on transverse chains and deadmen, 25 of which are for grounding; 2 pontoons (one on each shore) reserved for the loading and unloading of goods and the embarkation and disembarkation of passengers; 2 pontoons (one on each bank) for parking of prams.

49

[photo]

Rear

Works area

Intermediate

Front

2.2.4.4. – Guilvinec-Léchiagat to the NNE (2006). Landmarks on the leading line bearing 053°.

55 INFORMATION. – Department of Finistère (29); Le Guilvinec: 3100 inhabitants. Léchiagat: commune of Tréffiagat (2300 inhabitants).
61 Harbour master's office: tel: + 33 (0)2 98 58 05 67; fax: +33 (0)2 98 58 17 94; VHF: channel 12; email: capitainerie.guilvinec@cg29.fr
67 Maritime Affairs: tel: + 33 (0)2 98 58 13 13 (working hours only); fax: +33 (0)2 98 58 20 04.
73 Fish market (auction): tel: + 33 (0)2 98 58 11 40; fax: +33 (0)2 98 58 96 23.
79 Management of the marina: Single-Purpose Intercommunal Syndicate of Tréffiagat-Guilvinec, Tréffiagat town hall; tel: + 33 (0)2 98 58 14 47; fax: +33 (0)2 98 58 98 59.
85 CONNECTIONS. – Le Guilvinec has a railway station located at a distance of 40 km from the Brest-Lorient express route; Quimper is 31 km away.

01 **2.2.5. LESCONIL**
07 Chart *6646.*
13 The departmental fishing port of **Lesconil** (47° 47.8' N – 4° 12.7' W) provides shelter from the winds from the NW to E by N only. It is open to winds from the S, and there is a backwash even with W winds. It provides berths at the quay in 3 m of water. The appearance of the coast is described in section 2.2.3.1.

01 **2.2.5.1. Access**
07 The W side of the entrance to the channel is marked by the "Karek Greiz" E cardinal light buoy. By day, vessels follow the leading line on a bearing of 325° of the Lesconil bell tower and the whitened rock, to the left of the **Men ar Groas** lighthouse. This leading line passes to the E of **Basse Devel**, covered by 0.4 m of water, and between two shoals covered by 2.6 and 3.5 m of water respectively. It subsequently passes to the W of a shoal covered by 3.0 m of water, located 0.2 M to the S of the Énizan rock. It finally passes to the E of the **Men Caes** rock, marked by a port lateral beacon tower.

13 By night, the channel is shown by the axis of the white sector 313° – 333° of the Men ar Groas light.
19 Anchoring by any vessel or craft as well as the positioning of any equipment, particularly that used for fishing, are prohibited in the channel area (*Decree 35/92 of 22 May 1992 of the Maritime Prefect of the Atlantic*), delimited by:
– the line connecting the "Men Caes" beacon tower with the light on the head of Jetée Sud, to the W;
– the line from the Énizan rock towards the Men ar Groas lighthouse, as far as the intersection with the administrative limit of the port to the E.
25 Within the administrative limits of the port, the general regulations for navigational policing apply, which prohibit anchoring in the passages and stipulate that vessels must not hinder the circulation of other vessels.

01 **2.2.5.2. Port**
07 The port is only accessible to fishing vessels with a gross tonnage of less than 50. It is protected by Jetée Sud oriented E-W and by Digue Est oriented N-S. The heads of these two structures bear a light.
13

[photo]

2.2.5.2. – Lesconil, to the NW (2006).

19 The fishing port consists of a wide-mouthed basin in its NW part. To the E, Quai de la Criée, 160 m long in 1.5 m of water, is reserved for the unloading of fish. Farther N, a pontoon perpendicular to the quay receives fishing vessels in 1.5 m of water. To the W, a 110 m-long quay in 1.5 m of water is extended to the N by a 132 m-long quay in 3 m of water. At the N end of the port, there is a concrete careening area, with uncovering bottoms. The W quay has, at its S end, a pontoon reserved for leisure vessels.
25 The marina is located in Anse de Langoguen, sheltered by Jetée Sud. It has 95 anchor berths on buoys for small vessels, 38 of which are in the open water. Construction work is in progress.
31 An area for anchorage on deadmen located outside of the port, in an inlet of the Ster, is used by leisure vessels.
37 REGULATIONS. – Vessels entering the port must maintain a radio watch on VHF channel 12.
43 RESOURCES. EQUIPMENT. – Water and electricity on Quai de la Criée. Water, electricity and diesel for fishing vessels (automatic) on Quai Ouest. Workshops for repairing marine engines, grounding area, paid parking with water and electricity.
49 INFORMATION. – Department of Finistère (29); commune of Plobannalec (3100 inhabitants).
55 Fishing port: Loctudy harbour master's office, tel: +33 (0)2 98 82 88 97; fax: +33 (0)2 98 82 26 14.
61 Marina: town hall, tel: +33 (0)2 98 82 20 22; fax: +33 (0)2 98 82 24 20; email: mairie-plobannalec.lesconil@wanadoo.fr

67 CONNECTIONS. Railway station located 28 km from the Brest-Lorient express route.

01 2.3. ÎLES DE GLÉNAN

01 2.3.1. GENERAL INFORMATION

07 Charts *7146, 6647* and *6648.*

13 ENC *FR471460.*

19 **Îles de Glénan** extend for 7 to 8 M from E to W and 5 M from N to S. They include nine main islands, a large number of islets, rocks and boulders that uncover to a greater or lesser extent and shoals. This archipelago is roughly circular in shape and its centre is around 16 M to the ESE of the Eckmühl lighthouse. Île de Penfret, the main island of the group, is located at the E limit.

25 The Les Pourceaux rocky plateau, to the SE of Île aux Moutons (§ 2.4.4.1.) extends 1 M to the N of Îles de Glénan. Plateau de la Basse Jaune (§ 2.3.2.2.) extends around 2.5 M to the E of Île de Penfret.

31 Île de Penfret is one of the bases of the Les Glénan Nautical Centre, an important sailing school.

37

[photo]

2.3.1. – Îles de Glénan, to the W.

01 2.3.1.1. Rescue station

07 Île de Saint-Nicholas (during summer, from 13:00 to 19:00).

01 2.3.1.2. Tidal currents

07 For currents in the approaches to Îles de Glénan, see the chart tables and the atlas *Courants de marée de la côte Sud de Bretagne, d'Audierne au Croisic* [Tidal currents of the S coast of Brittany, from Audierne to Le Croisic].

13 Between Les Pourceaux and Îles de Glénan, the flood current heads between NE and E, depending on the location and time. It begins at – 0430 HW at Concarneau and reaches 1.1 knots at springs. The ebb, which heads in the opposite direction, begins at around + 0230 HW at Concarneau and reaches the same speed.

19 The currents are very sensitive to the influence of the winds.

01 **2.3.1.3. Submarine cable**

07 A disused submarine cable connects Île de Penfret to Beg-Meil (§ 2.4.1.4.) following the route marked on the chart. Vessels are advised against anchoring in the vicinity of the cable.

01 **2.3.1.4. Speed limits**

07 In addition to the 5 knot speed limit within the 300 m limit from the shore (*Decree 0406/1962 of the Maritime Prefect of the Atlantic*), speed is limited to 8 knots from 15 June to 15 September (*Decree 2005/20 of 13 June 2005 of the Maritime Prefect of the Atlantic*), within the area defined below:
– to the N, by latitude 47° 44' N;
– to the S, by latitude 47° 42' N;
– to the W, by longitude 4° 04' W;
– to the E, by positions 47° 44' N – 3° 57.2' W; 47° 42.42' N – 3° 56' W and 47° 42' N – 3° 56' W.

01 **2.3.1.5. Pilotage area**

07 Îles de Glénan are located in an area in which pilotage is compulsory for certain categories of vessels (§ 2.4.3.2.).

01 **2.3.1.6. Anchorage area**

07 The Les Glénan Nautical Centre organises and manages anchorage areas near the islands, on which the school bases of Bananec Nord, Drénec, Cigogne, Penfret NW and E are located.

01 **2.3.2. DANGERS AND BEACONAGE**

01 **2.3.2.1. General information**

07 The beaconage on the S edge of the archipelago is carried out using buoys. The dangers farthest offshore are, from W to E by S: **Basse Pérennès** (47° 41.3' N – 4° 05.7' w), covered by 6 m of water and marked to the SW by a W cardinal light buoy; the **La Jument** rock awash (47° 40.7' N – 4° 01.2' W), marked 1 M to the S by the "Jument de Glénan" S cardinal light buoy; **Les Laouennou** (47° 39.9' N – 3° 55.3' W) marked to the SE by an isolated danger buoy; the **Basse An Ero (Le Pignon)** uncovering shoal (47° 39.8' N – 3° 55.8' W), to the N of the previous danger, marked by a S cardinal buoy.

13 By night, the group of islets is lit by the red sector (292° – 035°) of the Île aux Moutons light.

19 Vessels avoid the dangers of Îles de Glénan:
– to the NW, by keeping within the white sector (035° – 050°) of the Île aux Moutons light;
– to the W, by not passing to the E of the leading line of the Bénodet light and the Combrit light on a bearing of 000.5° (Grand Chenal de Bénodet);
– to the E, by keeping the Île aux Moutons light to the right of the Île de Penfret light on a bearing of 316°.

01 **2.3.2.2. Plateau de la Basse Jaune**

07 The large rocky Basse Jaune plateau (47° 42.6' N – 3° 50.8' W) is located around 3.5 M E of Île de Penfret.

13 The shallowest depths and a rock awash are located at the E end of the plateau. This end is marked by the "**Jaune de Glénan**" E cardinal light buoy. 1.75 M to the WSW of this buoy, the "Corn Loch" isolated danger buoy marks the S side of the Korn al Loc'h shoal, covered by 6.8 m of water.

19 By night, the entirety of the plateau is covered by the red sector (292° – 035°) of the Île aux Moutons light.

25 By day, vessels pass to the E of this plateau by following the leading line on a bearing of 013.7° of the Pointe de Raguénez landmark and the Île Verte landmark (§ 2.5.6.1.). These landmarks are grey, in the shape of a gable end.

01 **2.3.3. ISLANDS, LANDMARKS AND ANCHORAGES**
07 Chart *6648.*

01 **2.3.3.1. Île de Penfret and approaches**
07 Île de Penfret (47° 43' N – 3° 57' W) is located at the E end of the archipelago. The lighthouse, a white square pyramid-shaped tower with a red top (24 m) is located in the vicinity of the N end of the island. A wind turbine and a tower stand near the lighthouse, to the NW. Noticeable in the centre of the island is another wind turbine and on the S end, the white house of an old semaphore.
13 **Île Guéotec**, immediately to the SW of Île de Penfret, bears a very visible landmark, a white gable end with a black vertical stripe in the middle and a large circular topmark.
19

[photo]

2.3.3.1. – Île de Penfret lighthouse, to the SW.

25 PENFRET ANCHORAGES. – *In winds from offshore, good shelters can be found leeward of the island, over a bottom of mud and madrepores of good holding.* On the W coast of the island, vessels should avoid anchoring in the vicinity of the disused submarine cable that heads NNW.
31 *The* **Porsmarc'h anchorage**, *located to the E of the island, N of Castel Raët, is of poor holding (bottoms of sand and pebbles). This anchorage should be avoided in winds from the WNW.* A mooring buoy is anchored around 400 m S of the lighthouse.
37 *The* **Anse du Phare anchorage**, *located to the W of the island, is perfectly sheltered from the winds from the E and S sectors,* two other mooring buoys are anchored around 300 m to the NW of the lighthouse. A slipway located in the N part of the cove allows recreational users to land with ease.
43 These three mooring buoys are reserved for the customs and lights and beacons services.

01 **2.3.3.2. Île de Saint-Nicolas and approaches**
07 Île de Saint-Nicolas (47° 43.3' N – 3° 59.9' W) [view 2.3.3.2.] occupies, with its neighbours **Île de Drénec, Île de Bananec** and **Île Cigogne**, the central part of the archipelago that extends towards the S by means of Île du Loch. The **La Pie** rock, 0.2 M to the NE of Île de Saint-Nicolas, is marked by an isolated danger light beacon, 0.7 M farther W, the **Le Huic** rock bears the tower of a disused lighthouse (15 m).
13 On the W end of Île de Saint-Nicolas stands a wind turbine bearing air obstruction lights. Île de Bananec, connected to the previous island by a sandbank that uncovers at low water, bears an E cardinal light beacon situated at **Pointe de la Baleine**, the SE end of the island.
19 Noticeable on Île Cigogne is an old fort surmounted by a white tower with a black top. **Île du Loc'h** bears a chimney (21 m); this island is private.
25 BANANEC ANCHORAGE (LA PIE). – *Located to the NNW of Bananec island, this anchorage is an excellent shelter in winds from the S sector.* Mooring buoys reserved for leisure vessels have been anchored to the W of the cove.

31 LA CHAMBRE ANCHORAGE (view 2.3.3.2.). – *The La Chambre anchorage is located along the S coast of Île de Saint-Nicolas. Small vessels anchor with the middle of the S wall of the fishpond*[3] *in position 310°.* An area of deadmen is set up during the summer season.

37 The access channel to the anchorage, marked by lateral buoys, opens 0.2 M to the W of the Pointe de la Baleine light beacon and leads to a landing slipway. The maximum speed permitted in the channel is 2 knots. Anchoring is prohibited here, except in the event of *force majeure.*

43 At high water, the anchorage is no longer sheltered by the neighbouring rocks and the choppy sea makes it uncomfortable. It is also exposed to the swell that tends to round the island.

49 It is also possible to land at a slipway, the end of which is marked by a S cardinal spar.

55

[photo]

Le Huic

La Pie

La Chambre

2.3.3.2. – Île Saint-Nicolas and La Chambre anchorage, to the NW.

61 ÎLE DU LOC'H ANCHORAGES. – *Two outer anchorages are accessible to leisure vessels.* **Stervat cove** *is well sheltered from the winds from the N sector, however vessels should be wary of the winds and the swell from the W.* The **Grande Plage anchorage**, to the N of the island, uncovers for the most part at low water. It is advisable to be wary of the falling tide.

67 CONNECTIONS. – Maritime links in summer with Loctudy, Bénodet, Beg-Meil, La Forêt-Fouesnant and Concarneau.

01 **2.3.4. CHANNELS**

07 Chart *6648.*

13 Several channels or passages allow leisure vessels to enter the archipelago. They are defined by leading lines marked on the charts. The most important one is **Chenal des Bluiniers**, which allows a small vessel coming from the W to reach the anchorage of Île de Saint Nicolas. This channel, a part of which uncovers slightly between Île de Saint-Nicolas and Île de Drénec, can only be followed during the flood from half-tide.

19 Navigation in the Îles de Glénan archipelago requires a great deal of attention as there are numerous dangers, isolated rocks, rocky overhangs or sandbanks in this area. The landscape is very variable here depending on the tide, vessels are therefore advised to calculate the tide precisely before entering the archipelago. It is difficult to identify the landmarks as they are often hidden by the relief of the islands.

25 During the summer period, the high level of traffic passing through the archipelago complicates the mariner's job of identifying the locations.

31 By night, the limited number of light landmarks does not permit safe navigation.

[3] Translator's note: the term "vivier" may also mean a "tank", "breeding ground" or "retaining basin". We are unable to determine the exact translation without further context.

01 ## 2.4. FROM LESCONIL TO BEG-MEIL
07 Charts *6647, 6649* and *6650.*

01 ### 2.4.1. GENERAL INFORMATION
07 The S approach to Anse de Bénodet, to the N of Îles de Glénan, is scattered with numerous isolated dangers. Two main channels, to the W and to the E of Île aux Moutons, allow vessels to navigate through this area.
13 Two rivers flow into the cove: in the W part, the Rivière de Pont-l'Abbé with the port of Loctudy at its mouth; in its N part, the Odet, or Quimper river, which houses the ports of Bénodet and Sainte-Marine.

01 #### 2.4.1.1. Signal station
07 Beg-Meil, semaphore (47° 51.3' N – 3° 58.5' W) [§ 1.4.7.2.].

01 #### 2.4.1.2. Rescue station
07 Bénodet (47° 52.3' N – 4° 06.5' W).

01 #### 2.4.1.3. Tidal currents
07 See the chart tables and the atlas *Courants de marée de la côte Sud de la Bretagne, d'Audierne au Croisic* [Tidal currents of the S coast of Brittany, from Audierne to Le Croisic].

01 #### 2.4.1.4. Submarine cable
07 A disused submarine cable connects Beg-Meil to Île de Penfret (§ 2.3.1.3.), following the route marked on the chart. Vessels are advised against anchoring in the vicinity of this cable.

01 ### 2.4.2. AREAS

01 #### 2.4.2.1. Marine farms
07 Concessions have been granted for marine farms over uncovering bottoms, outside of the navigational channels, anchorage areas and areas with pipelines and submarine cables, in **Anse du Pouldon** and in Rivière de Pont-l'Abbé (§ 2.4.7.8.), within an area limited at the entrance of the river by the straight line connecting the Loctudy church with the end of the Île Tudy slipway.
13 Marine farming areas, marked on the chart, are established on either side of the banks of the Odet, level with Anse de Porz Guen (§ 2.4.8.7.).

01 #### 2.4.2.2.Anchoring prohibited
07 Anchoring is prohibited in certain areas in the access to the port of Loctudy and in Rivière de Pont-l'Abbé (§ 2.4.7.8.).

01 #### 2.4.2.3. Nature reserve
07 From 1 April to 31 August, vessels are prohibited from entering the tern sanctuary located on Île aux Moutons (*Ministerial Decree of 23 December 2004 of the Director of Fisheries and Aquaculture*).

01 **2.4.3. PILOTAGE**
07 Chart *7146.*
13 ENC *FR471460.*

01 **2.4.3.1. Pilotage station. Advance notice of arrival**
07 Pilotage is provided by the station in Brest which has a pilot cruising vessel based in Concarneau (§ 2.5.4.7.).
13 The request for a pilot must be received at least 18 hours in advance or upon departing the last port of call, specifying the time and place of boarding requested (§ 2.4.3.2.).

01 **2.4.3.2. Pilotage areas**
07 In the Concarneau-Odet area, vessels over 50 m long and all vessels transporting oil, gas or hazardous substances are subject to pilotage within the area known as "zone de petite distance", located to the N of the line connecting the Trévignon, Île aux Moutons and Lesconil lighthouses.
13 Pilotage is optional in the area known as "zone de grande distance" limited to the E by the leading line on a bearing of 013.7° of the Pointe de Raguénez and Île Verte landmarks, to the S by the latitude of the "Jument de Glénan" buoy situated at the S limit of Îles de Glénan, and to the W by the longitude of the Lesconil lighthouse.
19 Vessels heading for Concarneau board the pilot on the entrance leading line, around 1 M SSW of the "Le Cochon" beacon tower (47° 50.69' N – 003° 56.29' W). For vessels heading towards the Odet, the pilot normally boards on the entrance leading line at around 1 M from the "Les Verrés" beacon tower (47° 50.60' N – 004° 06.03' W).

01 **2.4.4. ISLANDS, DANGERS AND BEACONAGE**

01 **2.4.4.1. At the open end of Anse de Bénodet**
07 **Île aux Moutons** forms the E part of a rocky plateau that extends for 2 M in an ENE-WSW direction. Low-lying and rocky, the island bears a lighthouse, a white square tower (17 m) and house,, and a wind turbine to the W of the latter. The **Pen a Guernen** rocks lie off it to the E.
13

[photo]

2.4.4.1. – Île aux Moutons lighthouse, to the NW.

19 1.9 M SW of the lighthouse, the "Rouge de Glénan" W cardinal light buoy is anchored at the SW end of **Basse Rouge**, a plateau that uncovers 1.3 m.
25 To the SE of Île aux Moutons and 1 M to the N of Îles de Glénan, the **Les Pourceaux** rocky plateau has several uncovering rocky heads. Its N limit is marked by the "Grands Pourceaux" N cardinal light buoy. **Rochers Leuriou**, at the SE end of the plateau, bear an E cardinal beacon tower. These dangers are covered by one of the red sectors (295° – 318°) of the Pointe de Langoz (Loctudy) light.

31 A mooring buoy reserved for the launches of the customs and lights and beacons services is anchored 0.2 M to the N of the lighthouse.

01 **2.4.4.2. W side of Anse de Bénodet**

07 A S cardinal light buoy marks **Basse Boulanger**, covered by 2.9 m of water, 2.5 M ESE of Lesconil. 1.3 M SW of this buoy, **Karreg Pell**, a rock covered by 3.5 m of water, is not marked.

13 1 M ESE of Basse Boulanger, **Roc'h Hélou**, a head that uncovers 0.3 m, is marked by a W cardinal buoy. 2 M N, **Basse Bilien** is marked by an E cardinal light buoy. These buoys, together with the Karek-Greis buoy (§ 2.2.3.1.), help vessels navigate around the dangers that lie off the coast between Lesconil and Loctudy. Unmarked rocks covered by less than 2.6 m of water are located immediately to the E of the line connecting the "Basse Boulanger" and "Basse Bilien" buoys.

19 These dangers, which are covered by the red sector (328° – 025°) of the **Pointe de Langoz** (Loctudy) light, join those of the central part of Anse de Bénodet described with the channels that cross them or run along them (§ 2.4.6.).

25

[photos]

Loctudy Île Tudy

2.4.4.2. – Pointe de Langoz and its lighthouse (inset), to the NW.

01 **2.4.4.3. E side of Anse de Bénodet**

07 **Roches de Mousterlin**, which bear the green "**La Vache**" beacon tower and the red "**Le Bœuf**" beacon tower lie up to 1.5 M S off **Pointe de Mousterlin**. The E edge of these dangers is marked by an E cardinal beacon tower marking the **Men Vraz** plateau. The "**La Voleuse**" S cardinal light buoy is anchored at the S limit of Roches de Mousterlin.

13 1.2 M WSW of Pointe de Mousterlin, **Basse Anavalen**, with several uncovering heads, is not marked 0.6 M NW of this shoal, the "**Le Taro**" W cardinal beacon tower marks the W limit of all of the dangers that lie off the coast between Pointe de Mousterlin and the mouth of the Odet.

19

[photo]

2.4.4.3. – Pointe de Mousterlin, to the NNE.

01 **2.4.5. COAST AND LANDMARKS**

07 In the background, the following are visible: the **Plonéour-Lanvern** bell tower and water tower, 3 M to the NW of Pont-l'Abbé, the Pont-l'Abbé water tower, which is particularly conspicuous, and the **Combrit**, **Pleuven**, **Fouesnant** and **Le Quinquis** water towers.

13 From the port of Loctudy as far as the approaches to Beg-Meil, the coast is made up of wooded dunes and lined with a continuous beach.

19 The dangers at the entrance to Loctudy are marked by the **Pointe de Langoz** and Karreg Saoz (§ 2.4.7.3.) light beacon towers.

25 The main landmarks in the approaches to Bénodet (§ 2.4.8.3.) are as follows: the large rear Bénodet lighthouse (La Pyramide), a white tower (39 m) with a green top; the Pointe de Combrit lighthouse, a white square tower (15 m) and house; the front Bénodet lighthouse (**Pointe du Coq**), a white beacon tower (13 m) with a green top and a green vertical stripe towards the leading line; the Bénodet water tower; **Pont de Cornouaille**, 1.4 M upstream of the mouth.

31 In position 118° at a distance of 3.5 M from the Pointe Combrit lighthouse, off Pointe de Mousterlin, **Le Corbeau** is a whitened rock. S of Pointe de Mousterlin, numerous rocks extend up to 1.5 M offshore (§ 2.4.4.3.).

37

[photo]

Large Bénodet lighthouse Bénodet bell tower

Combrit lighthouse La Rousse

2.4.5. – Approaches to the Odet. Main landmarks, to the N.

01 **2.4.6. CHANNELS AND PASSAGES**

07 Chart *7146*.

13 ENC *FR474160.*

19 In order to access the Odet or Rivière de Pont-l'Abbé, vessels coming from the W of Îles de Glénan may use either the Grand Chenal de Bénodet (§ 2.4.6.1.), or pass S or N of Île aux Moutons in order to then join Passage de l'Est (§ 2.4.6.2.).

25 To the S of Île aux Moutons, the passage between the island and the Les Pourceaux rocky plateau is clean. In order to pass N of the island, vessels should follow the leading line of the Île aux Moutons lighthouse and the **Trévarec** rock on a bearing of 079°. When they have cut across the leading line of the Combrit lighthouse and the "**Men Dehou**" beacon tower on a bearing of 340°, they should follow the bearing of 042° from the Beuzec-Conq bell tower (Concarneau) on the right side of the "**Linuen**" beacon tower (Beg-Meil).

01 **2.4.6.1. Grand Chenal de Bénodet**

07 The entrance to Grand Chenal de Bénodet is located 4 M to the ESE of the port of Lesconil. The axis of the channel is shown by the leading line on a bearing of 000.5° of the large Bénodet lighthouse and the Pointe Combrit lighthouse. The dangers in the approaches to the channel are marked by cardinal marks.

13 At the S entrance to the channel, the leading line passes very close to **Basse Hardy** covered by 5.8 m of water, and to the E of **Basse Rostolou** covered by 0.4 m of water, marked by an E cardinal buoy. The sea breaks violently over these two shoals when there is a swell.

19 A rocky shoal, covered by 5.1 m of water, is located on this leading line, 4.6 M from the Pointe Combrit lighthouse.

25 1.8 M N of Basse Hardy, the channel leaves **Basse Malvic** to the E, marked by a W cardinal buoy, and **Basse du Chenal** to the W, marked by the "Chenal de Bénodet" E cardinal buoy.

31 In order to enter the Odet, by day, vessels must clear Basse Malvic and subsequently head right in order to join the leading line of the large Bénodet lighthouse and the Pointe du Coq lighthouse on a bearing of 345.5° (view 2.4.6.1.). This leading line passes over **Basse de Bénodet**, covered by 4.2 m of water. In order to avoid this danger, vessels must stay on the leading line on a bearing of 000.5°, until they take the leading line of the Énizan rock (to the SE of Lesconil) and **Pointe Saint-Oual** and the **Men Bret** E cardinal beacon tower on a bearing of 224° to stern. This last leading line passes to the NW of Basse de Bénodet and joins the entrance leading line in the river.

37 By night, follow the leading line of the light of the large Bénodet lighthouse and the Combrit lighthouse on a bearing of 000.5°. At the limit of the red and white sectors, on a bearing of 295°, of the Pointe de Langoz (Loctudy) light, head to the right in order to take the Bénodet leading line on a bearing of 345.5°.

43

[photo]

Large Bénodet lighthouse

Le Coq lighthouse

Leading line on a bearing of 345.5°

2.4.6.1. – Entrance to the Odet. Leading line on a bearing of 345.5°.

01 **2.4.6.2. Passage de l'Est**

07 This passage is situated between the dangers to the NW of Île aux Moutons and **Roches de Mousterlin**. These dangers are marked by cardinal marks.

13 The following are located on the S side of the passage: the Pen a Guernen rocks, lying off Île aux Moutons to the E; the **An Treuz Vaz** reef, marked by an E cardinal beacon tower; the **Les Poulains** reef, marked by a N cardinal beacon tower

and the Men Dehou reef, marked by an E cardinal beacon tower. 0.45 M to the NW of Men Dehou, Basse Cluyou, covered by 2.1 m of water, is not marked.

19 Roches de Mousterlin, which border the N side of the passage, are described in section 2.4.4.3.

01 **2.4.7. LOCTUDY AND ITS APPROACHES**

07 Chart *6649.*

13 The departmental fishing port and marina of Loctudy (47° 50.3' N – 4° 10.2' W), located at the mouth of Rivière de Pont-l'Abbé, is a good shelter for small vessels. The appearance of the coast is described in section 2.4.5. An isolated white house, called "Château Loubrière" on the chart, constitutes a conspicuous landmark located 0.2 M W of the marina.

19 Mussel farms are located in Rivière de Pont-l'Abbé (§ 2.4.2.1.).

01 **2.4.7.1.Tidal currents**

07 For the currents off the mouth, see the chart table and the atlas *Courants de marée de la côte Sud de la Bretagne, d'Audierne au Croisic* [Tidal currents of the S coast of Brittany, from Audierne to Le Croisic]. In the entrance passage to the river, the current reaches 3 knots. It decreases upstream.

01 **2.4.7.2. Pilotage**

07 See section 2.4.3.

01 **2.4.7.3. Access**

07 The entrance to the channel is marked by a port lateral light buoy, anchored 100 m to the NE of the Karek Croisic shoal, covered by 1.1 m of water, situated 0.2 M to the NW of the "Karreg Saoz" port lateral light beacon tower. The N side of the channel is marked by three light buoys.

13 In E winds, the sea breaks over the shoals that extend to the NW of Karek Saoz, up to Karek Croisic.

01 **2.4.7.4. Regulations**

07 SPEED. – The speed is limited to 3 knots in the ports.

13 LIMITATION OF ENTRY AND EXIT MOVEMENTS. – For safety reasons, entry and exit movements are prohibited for non-motorised leisure vessels and to the craft of the sailing schools and clubs between 16:30 and 17:30, the times during which fishing vessels arrive. This prohibition can be lifted by order of the commander of the port of Loctudy in the event of a sudden change in the weather conditions.

19 ANCHORING PROHIBITED (*Decree 36/92 of 22 May 1992 of the Maritime Prefect of the Atlantic*). – Anchoring by any vessel and craft, as well as the positioning of any equipment, particularly that used for fishing, are prohibited in the area located to the W of the line connecting the "Karreg Saoz" and "Men Audierne" beacon towers. This area is marked on the chart.

25 Note: the destroyed "Men Audierne" beacon tower is marked by a starboard lateral[4] anchored to the SSE at a distance of 70 m.

31 Upstream of Loctudy, the same prohibition applies to the marked access channel to the port of Pont-l'Abbé.

37 Inside the ports, the general regulations for navigational policing apply, which prohibit anchoring in the passages and stipulate that vessels must not hinder the circulation of other vessels.

01 **2.4.7.5. Holding anchorage**

07 *Waiting vessels anchor off the entrance to Bénodet, 1 M W of the "Le Taro" W cardinal beacon tower. In storms from the SW, vessels should head for the shelter of Île de Penfret* (§ 2.3.3.1.).

[4] Translator's note: there is a word missing here, which could either be buoy, beacon or beacon tower.

01 **2.4.7.6. Port of Loctudy**

07 The port is accessed via a passage, dredged to 2.5 m below chart datum (theoretical height), open to the E between Quai du Blaz, to the S, and a groyne made of loose boulders, to the N. The end of the groyne bears a light.

13 FACILITIES. – The port comprises three sites, to the SE the fishing port in 1.3 to 5 m of water, depending on the quays, to the NW and to the W the marina.

19 Fishing vessels use the La Criée basin, to the N Quai du Blaz, measuring 191 m, Quai Guy Laurent, measuring 113 m, to the E Quai de la Criée, measuring 99 m, to the S Quai de la Coopérative, measuring 119 m, and Quai Rémy Le Lay, measuring 305 m.

25 The marina can accommodate around 600 leisure vessels, including 85 visitors, in 2 to 2.5 m of water. An area with 70 berths on mooring buoys is located to the E of Île Garo.

31

[photo]

2.4.7.6. – Loctudy to the NW (2006).

37 RESOURCES. – Water, electricity and diesel on the quays. Ice-making plant. Twelve craft for unloading fish. Naval building yard. Marine forge and repair of marine engines.

43 Water and electricity at the pontoons for leisure vessels; sanitary facilities; fuel; slipway; tug service; 15 t lift, 7 t crane, building and repair yard.

49 INFORMATION. – Department of Finistère (29); 3800 inhabitants.

55 Harbour master's office: tel: +33 (0)2 98 87 99 55; fax: +33 (0)2 98 87 49 88; VHF channel 12.

61 Fish market (auction): tel: +33 (0)2 98 87 40 11; fax: +33 (0)2 98 87 92 40.

67 Marina harbour master's office: tel: +33 (0)2 98 87 51 36; fax: +33 (0)2 98 66 50 30.

73 Maritime Affairs: tel: +33 (0)2 98 87 41 79.

79 CONNECTIONS. – Railway station. Express route 5 km away, Quimper 25 km away. Quimper-Pluguffan airport 25 km away.

01 **2.4.7.7. Île Tudy**

07 A slipway perpendicular to the shore, oriented to the W, is located on Île Tudy, a long peninsula closing the entrance to Rivière de Pont-l'Abbé to the N.

13 A grounding area, over a bottom of sand that uncovers 1 to 2.8 m, is located immediately to the N of the Île Tudy slipway. The marina has 144 anchor berths on transversal chains and deadmen. The berths are allocated by the town hall of Île Tudy (tel: +33 (0)2 98 56 42 57; fax +33 (0)2 98 56 36 26).

19 A launch provides passenger transport between Loctudy and Île Tudy and services, upon request, the leisure craft anchorage in July and August.

25

[photo]

Les Perdrix

2.4.7.7. – Île Tudy, to the N.

01 **2.4.7.8. Pont-l'Abbé**

07 Between Loctudy and Pont-l'Abbé, the bottoms uncover 1 to 1.8 m. **Rivière de Pont-l'Abbé** is used by leisure craft and passenger vessels only. Anchoring is prohibited in the channel.

13 The main quays are located on the right bank over bottoms that uncover 1.4 to 1.8 m. The bottoms uncover 2.5 m along the quay of the right bank. The permitted draughts are 3.3 m at springs and 2 m at neaps.

19 Building yards for leisure vessels.

25 INFORMATION. – Department of Finistère (29); 7800 inhabitants.

31 Harbour master's office: in the premises of the Agence Technique Départementale [Departmental Technical Agency], 23 Quai Pors Moro; tel: +33 (0)2 98 82 84 00; fax: +33 (0)2 98 82 84 29.

37 CONNECTIONS. – Railway station. Express route. Quimper 18 km away. Quimper-Pluguffan airport 20 km away.

43

[photo]

2.4.7.8. – Pont-l'Abbé, to the W (2006).

01 **2.4.8. PORTS OF THE ODET**

07 Charts *6649* and *6679*.

13 The ports of **Bénodet** and **Sainte-Marine**, located at the mouth of the Odet, on the E and W banks respectively, are used by many leisure vessels. The dry harbour of **Quimper-Corniguel**, located 8 M upstream, is used by small coasters and sand carriers.

19

[photo]

Large Bénodet lighthouse

Sainte-Marine

Kergaït

Penfoul

2.4.8. – Ports of Bénodet and Sainte-Marine, to the SSE (2006).

01 **2.4.8.1. Tidal currents**

07 For the currents off the mouth, see the atlas *Courants de marée de la côte Sud de la Bretagne, d'Audierne au Croisic [Tidal currents of the S coast of Brittany, from Audierne to Le Croisic]*. At the "La Poule de Bénodet" beacon tower, situated 0.7 M upstream of the mouth of the Odet, the flood and ebb reach 3 knots at springs. The changes of tide take place at – 0530 and + 0015 HW at Concarneau. Off the Bénodet slipway (Cale de l'Église), the maximum speeds are the same and the changes of tide take place at – 0500 and + 0015 HW at Concarneau. During spates, the ebb increases in strength and duration. The winds have a considerable influence on the currents.

01 **2.4.8.2. Pilotage**

07 See section 2.4.3.

01 **2.4.8.3. Entrance channel**

07 In order to access the entrance to the Odet, vessels follow the leading lights on a bearing of 345.5° of the large Bénodet lighthouse and the Pointe du Coq lighthouse (view 2.4.6.1.). The channel has lateral beaconage: the "**Les Verrès**" and "**Le Four**" beacon towers to starboard, the "**La Rousse**" red beacon and the "Basse Rousse" and "**La Potée**" buoys to port. The "Les Verrès" and "Le Four" beacon towers have dangerous rocks lying off them and vessels must not navigate too close to them.

13 Vessels subsequently head on a route that passes halfway between the **Pointe du Toulgoët** light beacon and the "La Poule de Bénodet" starboard lateral light beacon tower. In order to navigate up the river to the Penfoul marina, vessels remain in the middle of the channel in order to stay away from the vessels anchored on each side.

19 Vessels must enter by night only if the light is sufficient so as to be able to see the buoys and anchored vessels.

25 SPEED LIMIT. – Outside of the 300 m coastal strip in which it is limited to 5 knots (§ 1.5.3.2.), speed in the channel is limited to 8 knots between the "La Rousse" beacon and Pointe du Coq (*Decree 2003/07 of 28 February 2003 of the Maritime Prefect of the Atlantic*), and to 3 knots between Pointe du Coq and Pont de Cornouaille (*Decree 89-2075 of 3 November 1989 of the Prefect of Finistère*).

31 ANCHORING PROHIBITED. – Anchoring is prohibited in the channel, between Pointe du Coq and Pont de Cornouaille.

01 **2.4.8.4. Anchorages**

07 OUTER ANCHORAGES. – *The Anse de Bénodet holding anchorage is located 1.4 M S of the Pointe de Combrit lighthouse. At the entrance to the Odet, vessels anchor in Anse du Trez, in position 356° at a distance of 400 m from the "Le Four" beacon tower, in 8 m of water.*

13 RIVER ANCHORAGES. – Due to the number of leisure craft that use the ports of Bénodet and Sainte-Marine, mainly in summer, the waters are equipped, on either side of the channel, for anchoring on buoys or mooring at pontoons. The use of these anchorages and moorings is restricted. Vessels should contact the relevant harbour master's office.

19 In the Odet, the anchorage areas outside of the ports are established by *Prefectoral Decree 90-363 of 2 March 1990*. They are managed by recreational user associations. These areas are marked on the chart.

01 **2.4.8.5. Port of Bénodet**

07 The port of **Bénodet** (view 2.4.8.) extends along the left bank of the Odet, from Pointe du Coq to Pont de Cornouaille. Quai du Commandant L'Herminier, 143 m long, is located S of Pointe de Kergaït with bottoms that uncover 0.8 m.

13 The marina is spread out over the two neighbouring sites of **Kergaït** and **Penfoul**, both of which are equipped with pontoons and catwalks. Manoeuvres can be tricky here due to the current in the river, especially at the W pontoon of Penfoul.

19 Penfoul also has a 66 m-long quay in 2.6 m of water.

25 Mooring berths on buoys are organised along the bank between Pointe du Coq and Anse de Penfoul; 10 of them are reserved for fishing craft and 4 for launches transporting passengers.

31 Quai du Commandant L'Herminier and the Penfoul quay each bear a scale showing the height of the water in relation to the bottom.

37 The slipway of the old ferry is used by launches providing connections between Bénodet and Sainte-Marine. Cale de l'Église, the end of which, in 1 m of water, is marked by a starboard lateral beacon, is used by vessels carrying out excursions.

43 EQUIPMENT. RESOURCES. – The main equipment and services provided are as follows: 480 berths on pontoons, 70 of which are for craft in transit; maximum length 20 m; 200 berths on mooring buoys, 9 of which are for craft in transit; water and electricity on the pontoons; sanitary facilities; fuel; 10 t crane at Quai du Commandant L'Herminier; slipway; workshops.

49 INFORMATION. – Department of Finistère (29); 2800 inhabitants.

55 Harbour master's office (in Penfoul): tel: +33 (0)2 98 57 05 78; VHF channel 9.

61 Customs: in Quimper (§ 2.4.8.8.).

67 CONNECTIONS. – Railway station. Express route 18 km from Bénodet.

01 **2.4.8.6. Port of Sainte-Marine**

07 The **Sainte-Marine** marina (view 2.4.8.) extends along the right bank of the Odet, from Pointe du Toulgoët to the N headland of Anse de Rosa ar Vez, located 0.4 M upstream of Pont de Cornouaille. It has a set of pontoons and catwalks as well as mooring berths on buoys laid out along the bank.

13 Cale Coz, located in the vicinity of the seaman's mission, is reserved for the berthing of:
– vessels transporting pedestrians between the two banks of the Odet;
– small vessels less than 10 m long offering excursions in the estuary;

– vessels of professional fishermen for their refuelling operations.

19 LEISURE FACILITIES. – The main equipment and services provided are as follows: 350 berths on pontoons, 70 of which are for craft in transit; maximum length 30 m; maximum draught 10 m; 420 berths on mooring buoys, 40 of which are for craft in transit; water and electricity at the pontoons; sanitary facilities; waste sorting; slipway; Wi-Fi.

25 INFORMATION. – Department of Finistère (29); commune of Combrit (3200 inhabitants).

31 Harbour master's office: tel: +33 (0)2 98 56 38 72 (during the season every day from 08:00 to 20:00); fax: +33 (0)2 98 51 95 17; VHF: channel 9; email: port.plaisance@combrit-saintemarine.fr

37 Customs: in Quimper (§ 2.4.8.8.).

01 **2.4.8.7. The Odet (Quimper river)**

07 The maximum dimensions of vessels admitted to Quimper-Corniguel are:
– at springs: length 78 m, width 12 m, draught 5 m;
– at neaps: length 72 m, width 12 m, draught 3.4 m.

13 The **Quimper river** is at least 2 m deep up to **Baie de Kérogan**, 6 M upstream of Bénodet. In order to avoid accidents in the river, vessels that are not using a pilot are requested to inform the pilotage station (§ 2.4.3.). **Pont de Cornouaille**, which spans the river 0.5 M upstream of Bénodet, allows in its middle part a vertical clearance of 30 m over a width of 50 m. It is marked by coloured boards by day and by lights installed on the deck by night.

19 Due to the presence of disused submarine telephone cables in the approaches to Pont de Cornouaille, vessels are advised against anchoring within a strip that is 100 m wide upstream and 150 m wide downstream of the bridge.

25 From Bénodet to the entrance to Baie de Kérogan, vessels navigate in the middle of the river. The river has a very sharp bend where it rounds **Pointe de Kersabiec**, which is marked by a starboard lateral beacon around 3.5 M upstream of Bénodet. Upstream of this headland, the channel is marked as far as Quimper.

31 REGULATIONS. – Between Pointe du Coq and Pont de Cornouaille, the speed of vessels is limited to 3 knots (§ 2.4.8.3.). It is limited to 8 knots from Pont de Cornouaille to Pointe de Kersabiec, to 5 knots in the section of Les Vire-Court (sharp bends between the Kersabiec headland and the Le Canon headland) then to 8 knots again as far as the port of Corniguel (*Prefectoral Decree 89-2075*). Vessels must announce their presence with a long whistle blow before passing through each bend of Les **Vire-Court** (*International Regulations for Preventing Collisions at Sea*).

01 **2.4.8.8. Ports of Quimper**

07 **Quimper** consists of a port at the place known as Le Corniguel, on the right bank of the Odet 1.5 M downstream of the town, and another at the entrance to the town at the place known as Le Cap Horn. These ports are managed by the department of Finistère.

13 The port of Corniguel has a 345 m-long quay, 120 m of which are reserved for sand carriers. It was dredged to 0.0 m in 1996. Vessels ground at each tide on a bottom of mud.

19 The port of Le Cap Horn, which has a quay and a slipway on the right bank and another slipway on the left bank, is used only by a few leisure vessels and launches travelling to and from Îles de Glénan during the summer. The bridge spanning the Odet downstream of this port allows passage only for vessels with a vertical clearance of less than 5.80 m.

25 EQUIPMENT. RESOURCES. – Liquid fuel via tank trucks. Light industries.

31 INFORMATION. – Department of Finistère (29); prefecture; 67,100 inhabitants (120,400 for the settlement).

37 Corniguel harbour master's office: at the premises of the Agence technique départementale [Departmental Technical Agency], 23 Quai Pors Moro, 29120 Pont-l'Abbé; tel: +33 (0)2 98 82 84 00; fax: +33 (0)2 98 82 84 29.

43 Customs: tel: +33 (0)2 98 52 87 45.

49 CONNECTIONS. – Railway station. Brest-Lorient-Nantes express route 5 km away. Quimper-Pluguffan airport 5 km away.

55 Maritime links in the summer with Îles de Glénan.

01 ## 2.5. FROM BEG-MEIL TO POINTE DU TALUT

07 Charts *7031* and *7146*.

13 ENC *FR402300, FR402320* and *FR471460*.

01 ### 2.5.1. GENERAL INFORMATION

07 From Beg-Meil to the approaches to Lorient, the coast, which is relatively low-lying and rocky with numerous sandy beaches, is indented by Baie de la Forêt, the mouth of the Moros, which houses the port of Concarneau, the mouth shared by the rivers Aven and Belon, and the mouth of the Laïta or Quimperlé river.

13 In addition to the port of Concarneau, this coast houses numerous small fishing ports and several marinas.

19 Baie de la Forêt (47° 53' N – 3° 58' W) offers good anchorages sheltered from the winds from W to E by N. In winds from the S, the sea is never high here.

01 #### 2.5.1.1. Signal stations

07 Beg-Meil, semaphore (47° 51.3' N – 3° 58.5' W); Beg Melen (Île de Groix), semaphore (47° 39.2' N – 3° 30.2' W) [§ 1.4.7.2.].

01 #### 2.5.1.2. Rescue stations

07 Beg-Meil (Fouesnant) [47° 51.3' N – 3° 58.5' W); Trévignon (47° 47.7' N – 3° 51.2' W); Doëlan (Clohars-Carnoët) [47° 46.3' N – 3° 36.5' W].

01 #### 2.5.1.3. Tidal currents

07 Landward of the line connecting the Basse Jaune plateau to Pen Men (Île de Groix), the currents do not reach 1 knot at springs, expect in the rivers. See the chart tables and consult the atlas *Courants de marée de la côte Sud de la Bretagne, d'Audierne au Croisic* (Tidal currents of the S coast of Brittany, from Audierne to Le Croisic).

01 ### 2.5.2. AREAS

01 #### 2.5.2.1. Marine farms

07 Concessions have been granted for marine farms in the areas defined below, outside of the navigational channels, anchorage areas and areas with submarine pipelines or cables:

13 a) area in **Anse de Penfoulic** and on the right bank of Rivière de la Forêt (§ 2.5.3.2.), limited to the E by the straight line connecting the Cap-Coz light to the end of the Stang al Lestrec slipway;

19 b) area of Baie de la Forêt, to the N of a line connecting Beg-Meil to the "Pladen" W cardinal beacon;

25 c) Aven (§ 2.5.6.2.) and Rivière de Belon (§ 2.5.6.3.) area, limited to the S by the line at latitude between Pointe de Penquernéo and Pointe de Riec;

31 d) area in Rivière de Merrien (§ 2.5.6.4.), limited to the S by the straight line connecting the Merrien light to the N corner of the slipway of the port bearing the same name.

37 Concessions may be granted outside of these areas. In this case, they are indicated in the section describing the coastal area concerned.

01 #### 2.5.2.2. Explosives temporary dumping ground

07 A circular area with a radius of 200 m, intended for the temporary dumping of suspect devices caught by fishing nets or equipment (§ 1.5.3.4.), is located around position 47° 47.34' N – 3° 53.18' W.

01 **2.5.2.3. Spoil grounds**

07 Two spoil ground areas have been established at the open end of Baie de la Forêt, located respectively 0.5 M and 1.7 M to the SE of the "Linuen" beacon tower that marks the SE end of Chaussée de Beg-Meil. They are shown on the charts and marked by an isolated danger buoy during dumping operations.

01 **2.5.2.4. Prohibited area**

07 Navigation, stopping and anchoring by any mechanically propelled vessel or craft are prohibited from 1 April to 30 November in an area located in the E approaches to Cap-Coz. This area is marked on the chart (*Decree 59/93 of 22 July 1993 of the Maritime Prefect of the Atlantic*).

01 **2.5.3. BAIE DE LA FORÊT**

01 **2.5.3.1. Coast, landmarks and anchorages**

07 **Beg-Meil** (47° 51.3' N – 3° 58.4' W) encloses the Baie de la Forêt to the SW. Visible on the headland (view 2.5.3.1.) are the white house of the semaphore and next to it, to the NE, a conspicuous pylon bearing air obstruction lights.

13

[photos]

Cap-Coz

Semaphore

2.5.3.1. – Pointe de Beg-Meil and its semaphore, to the N (inset).

19 Pointe Beg-Meil is extended to the SE by rocks forming **Chaussée de Beg-Meil**, marked to the SE by the "Linuen" S cardinal beacon tower, to the N by the "**Laouen Pod**" E cardinal beacon tower, and to the E by the "**Linuen**" E cardinal light buoy.

25 A landing slip is located 0.5 M to the NW of Beg-Meil. At its end, which bears a light, the bottom uncovers 0.8 m. *A channel marked from 1 May to 30 September leads to an area of anchorages on mooring buoys and to the slipway off which vessels find a safe anchorage at all times.*

31 2 M to the N of Beg-Meil, the long beach of **Cap-Coz** ends with a dyke made of loose boulders bearing a sector light on its end (view 2.5.3.2.). On the N side of the dyke there is a slipway marked by

a port lateral pole and, farther W, a terreplein and a quay. Anchorages on buoys are laid out to the NW of the slipway in an area dredged to 2 m with uncovering bottoms. Vessels access Cap-Coz through a channel marked by lateral buoys. The first two buoys are light buoys.

37 0.9 M to the SE of the Cap-Coz light, the **"Le Scoré"** S cardinal beacon marks an uncovering rocky plateau, on the NE edge of the Baie de la Forêt anchorage. *In order to access this anchorage, vessels can head on a bearing of 345° towards the Forêt-Fouesnant bell tower and anchor on this bearing, in 3 to 13 m of water, over bottoms of sand and mud*, watching out for the mussel farms on lines located in two marked areas, 1.4 M S and 1.2 M SE of the Cap-Coz light. *Five mooring buoys, which are used by deep-draught vessels waiting for the right conditions to access the port, are located in the NW part of the bay. Small vessels, for their part, may also anchor at the open end of Anse Saint-Laurent, in the N part of the bay.*

43 To the NNE of Concarneau, the **Croix-Neuve** water tower and the spire of the **Beuzec-Conq** church are visible above the trees on the ridge. SE of the town, the **Trégunc** bell tower is visible, surrounded by trees.

49 In Concarneau itself, a group of multicoloured buildings in various shades of green, including a square tower with twenty floors, constitutes one of the conspicuous landmarks in the region, visible from a great distance.

55 Concarneau is described in section 2.5.4.

01 **2.5.3.2. Port-la-Forêt**

07 The **Port-la-Forêt** marina is located 0.5 M N of the Cap-Coz light, on the left bank of Rivière de la Forêt. Vessels access the marina through a channel dredged to 1.2 m, marked by lateral poles. The port is dredged to 2.0 m.

13

[photo]

Port-La-Forêt

2.5.3.2. – Access to Cap-Coz. Port-la-Forêt marina (2006).

19 The main equipment and services provided are as follows: 1070 berths on pontoons and 60 on buoys; 130 berths for craft in transit on pontoon V; multi-hull and single-hull vessels measuring 60 feet can be accommodated; draught 4.5 m; water and electricity on the pontoons; sanitary facilities; fuel; waste sorting; 4 t crane and 2 lifts, one with a capacity of 25 t and the other with a capacity of 30 t; slipway and careening areas, processing of water and oily wastes; workshops; cardiac defibrillator; Wi-Fi.

25 INFORMATION. – Department of Finistère (29); commune of La Forêt-Fouesnant (2900 inhabitants).

31 Harbour master's office: tel: +33 (0)2 98 56 98 45; fax: +33 (0)2 98 56 81 31; email: port-la-foret@wanadoo.fr

37 Maritime Affairs: in Concarneau (§ 2.5.4.7.).

43 CONNECTIONS. – Railway station; Express route 8 km away, Quimper 15 km away. In summer, maritime links to and from Îles de Glénan.

01 **2.5.4. CONCARNEAU**

07 Chart *6650.*

13 ENC *FR402320.*

19 **Concarneau** (47° 52.5' N – 3° 55.4' W) is a large port for naval repairs and building and for fishing (coastal mainly), which can also accommodate coasters or commercial vessels and leisure vessels. The maximum dimensions of the vessels that can access the port are limited as follows: for oil tankers (degassed only), by day and night, 107 m long (tolerance 108 m), 18 m wide, 5.7 m draught; for other vessels, by day 115 m long (tolerance 116 m), by night 110 m (tolerance 111 m), 18 m wide, by day and night.

01 **2.5.4.1. Pilotage**

07 See section 2.4.3.

01 **2.5.4.2. Access**

07 Vessels of a certain size, the masters of which do not know the channel well are advised against entering it without a pilot, especially at low water, N of the Beg-Meil – Pointe de Trévignon line.

13 The leading lights of the Beuzec-Conq bell tower and the white beacon tower with a red top of the La Croix lighthouse on a bearing of 028.5° lead into the small roadstead.

19 This leading line leads, 0.3 M to the WNW of **Pointe du Cabellou**, between the "Le Cochon" starboard lateral light beacon tower, and Basse du Chenal, covered by 0.4 m of water, marked to the NE by a port lateral light buoy. This passage, with least depths of 5 m and around 50 m wide, is very tricky in bad weather from the SE to the NNW.

25 Around 200 m to the SSW of Basse du Chenal, the "Lué Vras" port lateral light buoy marks a bottom covered by 0.6 m of water at the SE end of **Basse Lué Vras**. In order to enter the port, pass to the NW of the **Men Fall** and **Kersos** shoals, marked respectively by a starboard lateral light buoy and by a starboard lateral buoy, and head on a bearing of 071° towards the **Lanriec** lighthouse (marked Lanriec in green letters). Then pass to the E of the **La Médée** plateau, which bears a port lateral light beacon tower, remaining, by night, in the white sector (354° – 007°) of the Ville-Close light. Vessels should not navigate too close to this beacon tower, which has a shoal covered by 2.2 m of water lying up to 50 m to the SE off its end

31 From the "La Médée" beacon tower to the inner harbour, the narrowest width of the channel is 35 m with depths of 3 to 4 m. The channel has lateral light beaconage.

37 COMPULSORY ACCESS TRACK FOR VESSELS WITH A GROSS TONNAGE GREATER THAN 3000, TRANSPORTING OIL OR HAZARDOUS SUBSTANCES (*Decree 2006/69 of 30 August 2006, of the Maritime Prefect of the Atlantic*) [§ 7.4.2.]. – Two approach channels, marked on the charts, are provided for such vessels:

– the E approach channel, which leads between Plateau de la Basse Jaune and Pointe de Trévignon;

– the W approach channel, which leads between Île aux Moutons and Les Pourceaux, a plateau that lies off Îles de Glénan to the N.

43 The precise definition of these channels is given in Annex IV, tables 7.4.2.A. and 7.4.2.B.

01 **2.5.4.3. Anchorages**

07 LARGE ROADSTEAD. – *Vessels anchor in the bay, upon request, over a bottom of mud, on the access leading line of the small roadstead.*

13 SMALL ROADSTEAD. – *Vessels anchor in the small roadstead sheltered from the winds from the N to the SE by E, in 8 m of water, over a bottom of sand and mud, on the access leading line or to the W of this leading line.*

19 *By night, when on the access leading line, as soon as the Lanriec light appears, vessels open out the leading line in such a manner so as to see the Beuzec-Conq light on the left of the La Croix light and when the Lanriec light disappears, they anchor in 8 m of water.*

25 ANSE DE KERSOZ (§ 2.5.5.1.). – Vessels may anchor at the open end of **Anse de Kersos**, located 0.5 M to the SSE of the entrance to the port of Concarneau, sheltered from the winds from the N to the S by E, although with a reduced turning area. *Vessels anchor halfway between the "Kersos" beacon tower and the coast to the NE, in 3 to 5 m of water, over a bottom of mud and sand of good holding.*

01 **2.5.4.4. Regulations**

07 The *Code of Maritime Ports*, particularly the regulations for admission and declaration of entry, applies in the port of Concarneau.

13 From the "Le Cochon" beacon tower to the "Men Fall" buoy, speed is limited to 5 knots. From the "Men Fall" buoy to the inner harbour, speed is limited to 4 knots.

01 **2.5.4.5. Port**

07 The port of Concarneau includes, on either side of **Ville-Close**, an outer harbour occupied by the marina and an inner harbour in which activities connected with fishing, commerce and repairs are grouped. **Passage de Lanriec**, which connects these two parts of the port, has been cleared of rocks to a depth of 3 m.

13 0.3 M W of the entrance to Concarneau, the small **port of La Croix** is located in the shelter of the mole bearing the same name. It provides some anchorages for leisure vessels. The end of the mole is located in 0.4 m of water; the rest of the port dries.

19

[photo]

2.5.4.5.A. – Concarneau, to the NNE (2006).

25 OUTER HARBOUR. MARINA. – The outer harbour is protected to the S by Môle Pénéroff and to the E by a line of breakwater pontoons, connected to the end of the mole by a footbridge. In summer, these heavy pontoons are reserved mainly for the berthing of launches transporting passengers.

31 The "leisure" pontoons are located in 1 to 2 m of water. Along Quai Pénéroff, the berths, formed by a hard bottom covered by a thin layer of mud, dry 1 to 2 m. Along Ville-Close, the bottoms uncover 2 to 5 m. The main equipment and services provided are as follows: 342 berths on pontoons, 54 of which are for craft in transit (pontoon D); 75 berths on deadmen; maximum length 18 m, draught 3.5 m; water and electricity on the pontoons; sanitary facilities; fuel; private travelling crane; slipway and scrubbing grid.

37 INNER HARBOUR. – The inner harbour, extending N of Ville Close, is reserved for fishing vessels and vessels heading for the naval repair yard. Quai d'Aiguillon, Quai Carnot and Quai du Lin are

reserved exclusively for fishing vessels. At Quai du Lin, a trench is maintained with a depth of 5 m over a length of 260 m and a width of 20 m.

43 Half of Quai Est, the N part, is reserved for the victualling of fishing vessels. The other half, the S part, and the Pétroliers quay are reserved, as a priority, for cruise ships and commercial vessels.

49 Quai Rive Droite in Bassin du Moros is reserved, as a priority, for the victualling of fishing vessels. Quai Rive Gauche is reserved, as a priority, for naval repairs.

55 At the S end of Quai Rive Gauche, a pontoon moored to a dolphin accommodates 60-foot sailing vessels.

61 A dry dock occupies the NE part of Bassin du Moros. The other means of careening, slipway and lift are located in **Anse de Roudouic**, in the E part of the inner harbour (view 2.5.4.5.B.).

67 The Concarneau marina has a dry port designed to receive sailing and motorised craft (Roudouic area). The dry harbour has the capacity to accommodate 300 craft.

73

[photo]

Dry dock

Bassin du Moros

Anse du Roudouic

2.5.4.5.B. – Concarneau. Technical area, to the NE (2006).

01 **2.5.4.6. Resources**

07 SUPPLIES. EQUIPMENT. – Water, electricity and diesel on all of the quays. Food and various supplies by local ship chandlers. Ice.

13 Sanitary facilities, sanitary facilities and telephones near the harbour master's office of the marina.

19 EQUIPMENT. REPAIRS. – A 4 to 15 t travelling crane; two tugs, one of 450 HP and the other of 300 HP; divers belonging to a private company; tankers for the collection of oily wastes; building yards and repair yards for vessels made of wood and iron; mechanical workshops; 130 m-long and 27 m-wide dry dock for vessels with a draught 6.5 m; 2000 t boat hoist; 400 t slipway (Annex I).

01 **2.5.4.7. Town**

07 Department of Finistère (29); 20,000 inhabitants.

13 INFORMATION. – Harbour master's office: Terre-Plein du Quai Est; tel: +33 (0)2 98 50 79 91 and +33 (0)6 61 93 57 50; fax: +33 (0)2 98 50 85 41.

19 Harbour master's office of the marina: Môle Pénéroff; tel: +33 (0)2 98 97 57 96; fax: +33 (0)2 98 97 15 15; VHF: channel 9 (07:00 – 21:00 during the season, working hours out of season).

25 Pilotage of Brest-Concarneau-Odet: tel: +33 (0)2 98 44 34 95 and +33 (0)6 03 55 49 58; fax: +33 (0)2 98 44 00 45; email: BREST.PILOTS@wanadoo.fr

31 Fish market: tel: +33 (0)2 98 60 62 62
37 Maritime Affairs: 4 rue Lucien Hascoët; tel: +33 (0)2 98 60 55 56. Vessel safety centre: tel: +33 (0)2 98 60 51 40.
43 Cornouaille hospital: in Porzou, ambulance, heliport; tel: +33 (0)2 98 52 60 60.
49 Les Glénan nautical centre: 8 place Philippe Vianney; tel: +33 (0)2 98 97 14 84; fax: +33 (0)2 98 50 63 89.
55 SOS Plongée (request for divers): tel: +33 (0)2 98 50 50 49.
61 Chamber of commerce: tel: +33 (0)2 98 60 62 62.
67 Gendarmerie maritime [maritime police force]: 30 bis, rue de Kérose; tel: +33 (0)2 98 50 77 35; fax: +33 (0)2 98 50 77 66.
73 CONNECTIONS. – Railway (freight only). Links by coach with the Rosporden railway station (25 km). Express route 5 km away. Airports in Quimper-Pluguffan (25 km) and Lorient-Lann-Bihoué (55 km).

01 **2.5.5. FROM CONCARNEAU TO ÎLE VERTE**
07 Chart *7146.*
13 ENC *FR402320.*

01 **2.5.5.1. Coast, landmarks and anchorages**
07 Anse de Kersos, located 0.5 M to the SSE of the entrance to the port of Concarneau, is occupied by anchorages on buoys. *Vessels may anchor at the open end of the cove, in the shelter of winds from N to S by E* (§ 2.5.4.3.).
13 Farther W, **Pointe du Cabellou** is the point of departure for a waste outfall that extends to the SW up to 0.5 M offshore.
19 Baie de Pouldohan, which opens to the SE of Pointe du Cabellou, is described in section 2.5.5.2.
25 E of the access leading line to Concarneau, **Pointe de la Jument**, which bears a white pyramid (6 m), has lying 1.2 M W off it the **Korvenn de la Jument** shoal, covered by 4.2 m of water and, 0.7 M to the SW, the **An Houarnou** rocks, covered by 1.1 m of water. A circular spoil ground, with a radius of 250 m, is centred 0.2 M S of Korvenn de la Jument.
31 Between Pointe de la Jument and Pointe de Trévignon, the coast is foul and has shoals and numerous uncovering heads lying off it. The W limit of the dangers is marked by the "**Le Dragon**" W cardinal light beacon tower, located to the S of the uncovering **Les Soldats** rocky plateau. The **Korvenn de Trévignon** shoal, covered by 2.4 m of water, is located at the S end of these dangers that vessels can avoid, by day, by keeping to the W of the leading line of the Beuzec-Conq bell tower and the Pointe de la Jument pyramid. By night, the same dangers are covered by the red sector (230° – 352°) of the light of the "Le Cochon" beacon tower.
37 **Pointe de Trévignon** (47° 47.5' N – 3° 51.3' W) [view 2.5.5.3.] bears a conspicuous building in the shape of a castle with a crenellated tower. N of the headland, on a heap of rocks, the Trévignon lighthouse is a white square beacon tower with a green top (8 m).
43 The port of Trévignon is described in section 2.5.5.3.
49 E of the headland, over a distance of around 3 M, the coast is once again very foul. The dangers that are farthest offshore, to the WSW of **Île Verte**, are marked by the "**Men-Du**" isolated danger beacon tower, the "**Corn-Vas**" W cardinal buoy and the "**Men an Treas**" S cardinal buoy. This last buoy marks a rock that uncovers 1.4 m.
55 2.3 M to the ESE of Pointe de Trévignon, Île Raguénez houses the anchorage bearing the same name, described in section 2.5.5.4.

01 **2.5.5.2. Baie de Pouldohan**
07 In the S part of **Baie de Pouldohan** (47° 50.8' N – 3° 54.2' W) and in the cove situated to the S of the lighthouse bearing the same name, are located respectively the small ports of **Pors-Breign (Port-Brenn)** and of **Poul-**

dohan, where anchorages for fishing and leisure craft are established. The capacity of these two ports is 220 anchorages on berths. Pors-Breign has a berthing slip and a slipway for craft.

13 0.3 M W of Pors-Breign, Roche Tudy bears a starboard lateral beacon tower.

19 Vessels access the port of Pouldohan by heading on a bearing of 059° towards the lighthouse, a small white square tower (6 m) with a green base and top. A W cardinal beacon, 70 m to the SW of the lighthouse, indicates the fork towards the Moulin-à-Mer branch, which leads to the Minaouët shipyard, equipped with a launching slipway, 400 m to the NE of the lighthouse. However, craft prefer to ground at the open end of the Pouldohan branch, between 100 and 200 m to the SE of the lighthouse, over a bottom of sand that uncovers 0.8 to 2 m. They can also enter farther S, in the Pouldohan branch, to the SSE of the lighthouse, in order to find a better shelter from the W winds.

01 **2.5.5.3. Trévignon**

07 Trévignon (47° 47.7' N – 3° 51.3' W) [view 2.5.5.3.], a small fishing port and marina, is located in the grounding area on the W side of Pointe de Trévignon. Its protection is provided to the S by a breakwater connecting the rocky islet that bears the lighthouse to land, and to the W by a dyke the head of which bears a light. The bottoms of sand and rock uncover 3.7 m.

13 The port has a terreplein and a quay, as well as a slipway and a tidal flat for careening.

19 The haven and the slipway of the lifeboat occupy the SE corner of the port.

25

[photo]

Conspicuous house

Lighthouse

2.5.5.3. – Headland and port of Trévignon, to the S (2006).

31 ACCESS. – The conspicuous house (in the shape of a castle) of Pointe de Trévignon (§ 2.5.5.1.) constitutes a good landmark for the approach that can be made either from the W, or from the SW.

37 When coming from the W, vessels head on a bearing of 089° towards the lighthouse, which means that they pass 0.3 M S of the "**Le Dragon**" W cardinal beacon tower. When coming from the SW, head on a bearing of 028° towards the lighthouse. By night, vessels are guided by the white sectors (085° – 092° and 004° – 051°) of the light.

43 Vessels follow the routes indicated above until they are around 300 m from the lighthouse in the first case, or 300 m from the headland in the second, in order to then navigate N along the dyke, the head of which bears a light, a white column with a green top (4 m).