



RÉPUBLIQUE
FRANÇAISE

*Liberté
Égalité
Fraternité*



L'océan en référence

National Hydrography Programme 2021-2024



Table of contents

Introduction	p. 5	Knowledge Maps	p. 15
Context	p. 6	UNDERSTANDING CATZOC	P. 16
2.1 HYDROGRAPHY	P. 6	UNDERSTANDING KNOWLEDGE MAPS	P. 18
2.2 INTERNATIONAL OBLIGATIONS	P. 6	FRENCH METROPOLE	P. 20
2.2.1 INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA	P. 6	Eastern Channel - North Sea façade	p. 20
2.2.2 OTHER INTERNATIONAL AGREEMENTS RELATED TO HYDROGRAPHY	P. 6	North Atlantic - Western Channel façade	p. 22
2.3 NATIONAL HYDROGRAPHY	P. 7	South Atlantic façade	p. 24
2.4 AVAILABLE RESOURCES	P. 8	Mediterranean façade	p. 26
2.4.1 SHOM RESOURCES	P. 8	OVERSEAS	P. 28
2.4.2 OTHER RESOURCES	P. 8	Saint-Pierre and Miquelon	p. 28
2.5 NAUTICAL CHARTS AND DOCUMENTS	P. 8	West Indies	p. 30
2.5.1 GENERAL REGULATIONS	P. 8	French Guiana	p. 32
2.5.2 CARRIAGE REQUIREMENT	P. 8	Clipperton	p. 34
2.5.3 PRODUCTION OF NAUTICAL CHARTS AND DOCUMENTS	P. 8	French Polynesia	p. 36
2.6 TRANSMISSION OF DATA COLLECTED BY THIRD PARTIES	P. 10	Wallis and Futuna	p. 38
2.6.1 REGULATORY FRAMEWORK	P. 10	New Caledonia	p. 40
2.6.2 DATA TRANSMISSION PROCESS	P. 11	Austral Islands and Terre-Adélie	p. 42
2.7 CONCERNED AREAS	P. 11	Indian Ocean	p. 44
National Hydrography Programme	p. 12	FOREIGN AREAS	P. 46
3.1 COLLECTING NEEDS	P. 12	TOPO-BATHYMETRIC LIDAR SURVEYS	P. 47
3.2 PROGRAMME GOVERNANCE	P. 12	Information sheet for application for hydrographic works	p. 49
3.3 2021 - 2024 SURVEY PROGRAMME	P. 12		
3.3.1 WATERS UNDER FRENCH JURISDICTION	P. 12		
3.3.2 WATERS UNDER FOREIGN STATE JURISDICTION...	P. 13		

National Hydrography Programme



Introduction

The National Hydrography Programme (PNH) outlines the hydrographic surveys in the maritime areas under French responsibility scheduled for the period 2021-2024. The PNH is updated regularly to take into account new needs expressed by the maritime community and the Shom hydrographic capabilities in these areas under French responsibility. The PNH is also available on the Shom website www.shom.fr.



Context

2.1 HYDROGRAPHY

Hydrography is the branch of applied science concerned with the measurement and description of the physical features of oceans, seas, coastal areas, lakes and rivers, and the prediction of their evolution, primarily in the interests of safety of navigation and all other maritime activities, including economic development, security and defence, scientific research and environmental protection (*definition agreed by the International Hydrographic Organisation (IHO) at its 4th extraordinary international hydrographic conference*).

Mineral exploitation, energy extraction, fishing, yachting, maritime trade, coastal zone management, maritime tourism etc., are all activities in which hydrographic knowledge, data, information and products play an important planning and management role, thus contributing to the generation of economic benefits for coastal states.

2.2 INTERNATIONAL OBLIGATIONS¹

2.2.1 INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA

In July 2002, the revised Chapter V of the International Convention for the Safety of Life at Sea (SOLAS) entered into force.

Regulation 9 of Chapter V of SOLAS defines the hydrographic services that contracting governments are required to provide. The provision of these hydrographic services is, in fact, an obligation of the contracting governments under international treaty law.

Regulation 4 of Chapter V of the SOLAS Convention imposes an obligation on contracting governments to arrange for the provision of appropriate navigational warnings.

At the end of 2016, the SOLAS Convention has 162 signatory States which have therefore committed themselves to the obligations contained in Chapter V of the SOLAS Convention and, in the case of hydrography, the obligations contained in Regulations 4 and 9 of Chapter V.

2.2.2 OTHER INTERNATIONAL AGREEMENTS RELATED TO HYDROGRAPHY

Hydrography and marine cartography are also highlighted in the following international agreements:

2.2.2.1 United Nations General Assembly resolution a/res/53/32

In November 1998, the fifty-third session of the United Nations General Assembly approved Resolution A/RES/53/32, under agenda item 38 (a) «Oceans and the law of the sea», inviting States to cooperate in the field of hydrography and nautical information in order to make hydrographic and nautical information available worldwide.

2.2.2.2 UN General Assembly Resolution

Since 1998, the annual resolution on oceans and the Law of the Sea adopted by the United Nations General Assembly has encouraged the development of hydrographic and cartographic capabilities. In resolution A/RES/69/245 adopted in December 2014, the General Assembly, stressing the vital importance of hydrographic surveys and marine cartography, and the important contributions of electronic marine cartography to the safety of navigation but also to the management of the maritime environment, calls for increased efforts to build the capacity of developing countries to improve hydrographic services and chart production, including electronic charts, and invites States to join the IHO and all States to collaborate with the IHO in view of the importance of its work and the need for hydrographic data worldwide.

2.2.2.3 1982 United Nations Convention on the Law of the Sea

The United Nations Convention on the Law of the Sea (UNCLOS) which recognises the IHO as the competent organisation for hydrographic matters contains a significant number of references that are directly relevant to hydrography and marine cartography. The correct and proper implementation of many aspects covered by UNCLOS requires the existence of a well-established Hydrographic Service. These include rules on :

- the establishment of baselines,
- the delimitation of maritime zones such as the territorial sea, the exclusive economic zone and the continental shelf,

¹ - Extract from IHO Publication M2 (version 3.0.5).



The mission of Shom is to understand and describe the physical marine environment in its relationship with the atmosphere, the seabed and coastal areas, and to forecast its evolution.

- the identification of traffic separation schemes,
- the identification of traffic lanes in transit and innocent passage routes,
- the deployment of submarine cables and pipelines,
- carrying out drilling on the seabed,
- carrying out marine scientific research.

2.3 NATIONAL HYDROGRAPHY

Shom exercises the State's attributions in terms of national hydrography in areas under national jurisdiction and in areas where France has responsibilities, in particular as a result of the international commitments mentioned above, by ensuring the collection, archiving and dissemination of official information necessary for navigation, in accordance with article R3416-3 of the Defence Code setting out the mission of Shom.

This mission concerns the collection of data at sea and the dissemination of nautical documentation for the needs of surface navigation, in waters under French jurisdiction and in the areas of cartographic responsibility of France.

The necessary hydrographic surveys are carried out by Shom or under its control from the limit of the exclusive economic zone or the continental shelf or the legal extension of the continental shelf to the coastline.

Unless special arrangements have been made with the services concerned, Shom does not carry out hydrographic surveys either within the limits of seaports, or upstream of the transverse limit of the sea in the mouths of rivers, or in ponds communicating with the sea.

These surveys are carried out to enable the updating of nautical charts and documents. They are generally concerned with bathymetry, but not only.

Hydrographic surveys allow the collection of other data necessary for navigation: characteristics of landmarks and buoyage, positioning of offshore buoys or regulated areas, positioning of underwater cables, identification and positioning of wrecks or obstructions, measurement of currents, improvement of tidal knowledge, characteristics of the nature of the seabed, particularly for anchorage areas or emergency anchorages, measurement of geophysical fields (magnetic anomaly, etc.).

This information can of course meet other needs:

- risk prevention (tsunamis, cyclonic swells, rising sea level due to global warming, marine submersion, flooding, etc.)
- coastal protection (coastal modification due to erosion, protection of fauna and flora, etc.)
- maritime delimitations ;
- land use planning ;
- economic development (ports, tourism and industry)
- exploitation of energy resources;
- scientific studies and research;
- defence and national security (landing or evacuation operations, coastal surveillance, etc.).

2.4 AVAILABLE RESOURCES

2.4.1 SHOM RESOURCES

Primarily, Shom has nautical resources made available by the Ministry of the Armed Forces within the framework of its objectives and performance contract: *Borda*, *La Pérouse* and *Laplace* hydrographic vessels, *Beautemps-Beaupré* hydrographic and oceanographic vessel and the ships of the French Oceanographic Fleet, notably *Pourquoi-pas?* oceanographic vessel.

In addition, Shom benefits from the support of Community of New Caledonia, in particular the buoy vessel *Louis Hénin*, within the framework of a cooperation agreement in hydrography in New Caledonia, following the transfer, since 1 January 2011, to New Caledonia of the responsibility to carry out the hydrographic surveys necessary for the safety of navigation in New Caledonia's territorial waters.

2.4.2 OTHER RESOURCES

Other means may be implemented by other maritime stakeholders: ports, territorial authorities, etc.

The obligation to transmit the collected data to Shom is detailed in paragraph 2.6.

2.5 NAUTICAL CHARTS AND DOCUMENTS

2.5.1 GENERAL REGULATIONS

The SOLAS definition of a nautical chart or publication is contained in Regulation 2 of Chapter V as follows:

"Nautical chart or nautical publication is a special-purpose map or book, or a specially compiled database from which such a map or book is derived, that is issued officially by or on the authority of a Government, authorized Hydrographic Office or other relevant government institution and is designed to meet the requirements of marine navigation."

Regulation 9 of Chapter V of the SOLAS Convention, in particular Articles 1, 2.2 and 2.3, sets out the obligations of contracting governments to develop and disseminate nautical information to ensure safe navigation. This includes publishing nautical information in the form of charts and specialized publications, and updating this material by issuing notices to mariners and corrections to documents in electronic form.

2.5.2 CARRIAGE REQUIREMENT

The SOLAS Convention stipulates in Chapter V, Regulation 19, Article 2.1, paragraph 4, the requirement for all ships, irrespective of size, to carry *"nautical charts and nautical publications to plan and display the ship's route for the intended voyage and to plot and monitor positions throughout the voyage; an electronic chart display and information system (ECDIS) may be accepted as meeting the chart carriage requirements of this subparagraph."*


In the French regulations:

- the obligation to carry charts and nautical publications is the subject of division 221 of the regulations annexed to the Order of 23 November 1987, as amended;
- when there is no obligation to carry an ECDIS, division 341 of the same regulations sets out the conditions for the use of electronic chart display systems (ECS) without carrying «paper» charts;
- division 240 sets out the conditions for carrying charts for pleasure boating at sea on vessels up to 24 m in length.

2.5.3 PRODUCTION OF NAUTICAL CHARTS AND DOCUMENTS

In order to meet the obligations of the SOLAS Convention made to the contracting governments, Shom ensures for France the production of the following nautical documentation:

- electronic navigational charts in S-63 format,
- navigational charts in paper form,
- general navigation books (nautical instructions, current atlases, tide tables, light and radio signal books),
- scanned charts in GEOTIFF format,
- G-derived charts (with additional sedimentological information), Z-derived charts (with an overlay of the military exercise areas),
- specific defence maps.



Each contracting government shall take all necessary measures to ensure that information concerning any danger received from any reliable source is promptly made known to the persons concerned and communicated to the other Governments concerned.

In the areas where nautical documentation is produced by Shom, under French sovereignty and abroad (see § 2.7), all the data in the possession of Shom is used. This includes both data acquired within the framework of national hydrography (see § 2.3 and 2.7) and data produced by third-party organizations (see § 2.6).

Shom has hydrographic and oceanographic capabilities made available by the Ministry of Defence as part of its objectives and performance contract



Documents are systematically updated in near-real time as soon as information is required:

- urgently by notice to mariners (within 24 hours);
- with minimal delay:
 - by weekly broadcasting of the Notices to Mariners,
 - by the broadcasting of patches to electronic navigation charts,
 - by keeping the scanned charts in GEOTIFF format available at Shom up to date.

These updates are processed on an ongoing basis as nautical information is received.

The rules applied for the production of these updates are those of Section B-600 of the *IHO Rules for International Charts (INT)* and *IHO Specifications for Nautical Charts (S-4)* already mentioned.

The editing of a map is considered when the exploitation of new information becomes too complex if transmitted by Notice to Mariners. All the information contained in the chart or book may then be revised.

Thus, on average each year, nearly one hundred significant cartographic works are carried out on the nautical charts of Shom: about 15 charts are revised in their entirety, 40 charts are updated to take into account targeted new collected data and 40 charts are subject to a partial revision.

2.6 TRANSMISSION OF DATA COLLECTED BY THIRD PARTIES

2.6.1 REGULATORY FRAMEWORK

Hydrographic surveys carried out by third parties in the French areas of responsibility are, as far as possible, collected by Shom and then used to update nautical

documentation (charts and publications). In waters under French responsibility, this transmission is mandatory in application of the Mining Code (article L413-1), the Prime Minister's instruction of 8 April 2020 related to the collection, transmission, processing and dissemination of nautical information and the Defence Code (article R3416-6).

Extract from Article L413-1 of the Mining Code

As an exception to the provisions of the first two paragraphs of this article, information concerning the safety of surface navigation as well as that concerning the physico-chemical properties and movements of the underlying waters and collected on the occasion of work carried out at sea immediately falls into the public domain.

This information must be communicated, as soon as obtained, as far as their respective missions are concerned, to the National Directorate of Meteorology and to Shom, which may, in addition, have information and documents concerning the safety of submarine navigation and the morphology and superficial nature of the seabed handed over without delay.

2.6.2 DATA TRANSMISSION PROCESS

On its website – www.shom.fr – Shom provides bathymetric survey producers with standards and recommendations intending to guide them when carrying out their work at sea and drafting their final documents, and to facilitate the use of these data by Shom, in the interest of all sea users and more particularly for the safety of navigation.

2.7 CONCERNED AREAS

The areas in which Shom carries out its national hydrography activity are the following:

- waters under national jurisdiction bordering metropolitan territory;
- waters under national jurisdiction bordering the overseas departments and overseas communities;
- waters under national jurisdiction bordering the French Southern and Antarctic territories;
- areas abroad where France has responsibilities under international commitments:
 - under which France assumes, for the benefit of third States, responsibilities for hydrographic services within the meaning of Regulation 9 of Chapter V of the International Convention for the Safety of Life at Sea (SOLAS),
 - as a recognised charting authority within the International Hydrographic Organisation.

Diversity and remoteness of these areas make it necessary to optimise the use of resources and to seek to satisfy the needs of as many users as possible when deploying.



The diversity and remoteness of the areas in which Shom carries out its hydrographic activities make it necessary to optimise the use of resources during deployments.

National Hydrography Programme

3.1 COLLECTING NEEDS

To update the national hydrographic programme, Shom involves as many users of its nautical products as possible, who are encouraged to make proposals for surveys or improvements to Shom's nautical products and charts, for inclusion in the annual planning process.



COLLECTING NEEDS

The needs are expressed according to the framework defined in the annex (p. 49).

All submissions should be sent to Shom.



Shom - 13 rue du Chatellier
CS 92803 - 29228 BREST CEDEX 2



hydro.plans@shom.fr

3.2 PROGRAMME GOVERNANCE

The national hydrographic programme is managed by the governing board of directors of Shom, which sets priorities. Needs are mainly assessed by Shom according to the state of existing knowledge and the requirements to be met, supplemented by the needs expressed by users (maritime consultation bodies, Ministry of the Armed Forces, annual collection described above, etc.).

3.3 2021-24 SURVEY PROGRAMME

State of knowledge and objectives for the period are established by maritime façade. The work forecasts for 2021 - 2024 may be partly adapted to take the evolving priorities into account.

The target knowledge (for a given area) is established according to the main needs to be met according to the following criteria and translated into zones of confidence designated by the term "CATZOC", with reference to the IHO S-57 standard (see table p. 17):

- Based on the regulations and a depth criterion:
 - Ports, channels, recommended lanes, anchorage areas, Traffic Separation Schemes, waiting areas, routes used by high-speed vessels (usually over 30 knots), etc. must be surveyed to a zone of confidence A1 or A2 (CATZOC A1/A2 objectives).
 - Traffic separation zones and all coastal areas with a depth of less than 50 m (or 200 m in case of strong gradient as often in overseas areas) which are not CATZOC A target areas should be surveyed to a B zone of confidence (CATZOC B objectives).
- From the analysis of maritime practices (AIS data or areas of special interest):
 - Routes practised in a CATZOC B objective area according to the above criteria should be surveyed to a A1 or A2 zone of confidence (CATZOC A1/ A2 objectives).
 - Routes within a CATZOC C objective area according to the above criteria should be surveyed to a zone of confidence B (CATZOC C objectives).
 - Routes or accesses to ports or anchorages of

particular interest, but not yet regulated, should be surveyed to a zone of confidence A1, A2 or B (CATZOC A1/A2 or B objectives).

The remaining areas, not covered by the above criteria, without objectives, will have to be surveyed according to a zone of confidence C (CATZOC C).

These areas are coded on the maps according to the associated CATZOC. The surveys to be carried out will then be executed to meet the target objective.

These maps are intended to evolve according to further known or identified needs.

The existing knowledge is established from the bathymetric data available in the Shom databases (data available on data.shom.fr).

3.3.1 WATERS UNDER FRENCH JURISDICTION

The principle programme for hydrographic surveys is established for 2021-2024 on the basis of 500 vessel days at sea along the coasts of mainland France and 620 days overseas.

Cf. maps on pages 20 to 45.

The maritime spaces shown on the PNH maps are indicative. Some of these boundaries have not been the subject of a delimitation agreement with neighbouring States or are not officially published. They are represented by dashed lines

3.3.2 WATERS UNDER THE JURISDICTION OF A FOREIGN STATE FOR WHICH FRANCE HAS CARTOGRAPHIC RESPONSIBILITY¹

The principle programme for hydrographic surveys in waters under the jurisdiction of a foreign State for which France has charting responsibility is established for 2021-2024 on the basis of 300 ship days at sea.

Cf. maps on page 46.

Due to the scale of the map, the survey area and maritime spaces are not shown on these maps.



¹ - This responsibility is formalised by a bilateral arrangement with these States or, failing that, recognised by an international organisation.





THE KNOWLEDGE MAPS



UNDERSTANDING CATZOC

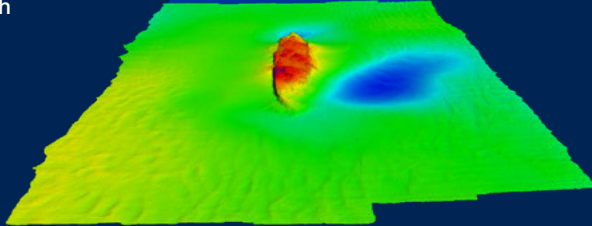
CATZOC : CATEGORY OF ZONE OF CONFIDENCE IN DATA

CATZOC
A1

48°20.357' N 004°31.152' W



- Full coverage of seabed
- High measurement accuracy of position and depth

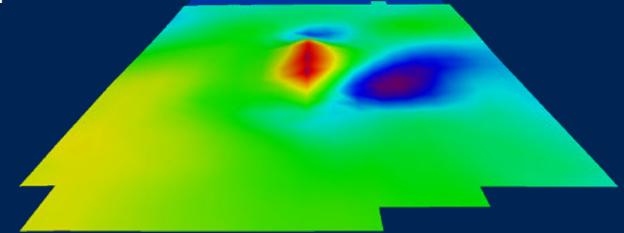


CATZOC
A2

48°20.36' N 004°31.15' W



- Full coverage of seabed
- Good measurement accuracy of position and depth

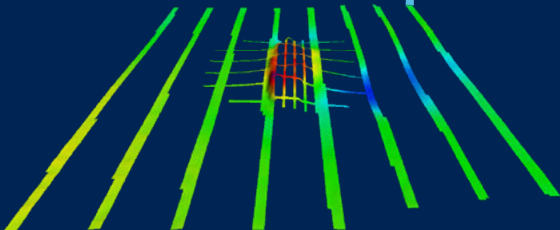


CATZOC
B

48°20.40' N 004°31.15' W



- Partial coverage of the seabed
- Good measurement accuracy of position and depth

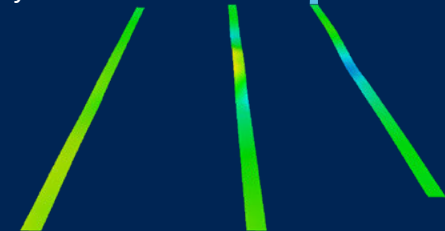


CATZOC
C

48°20.5' N 004°31.0' W



- Partial coverage of seabed
- Low measurement accuracy of position and depth



Category of zones of confidence in the data - CATZOC					
1	2	3		4	5
ZOC ¹	Position accuracy	Depth accuracy		Seafloor coverage	Typical survey characteristics
A1	± 5 m + 5% depth	= 0,5 + 1 % depth		Full area search undertaken. Significant seafloor features detected ² and depths measured.	Controlled, systematic survey high position and depth accuracy achieved using DGPS or a minimum three high quality lines of position (LOP) and a multibeam, channel or mechanical sweep system.
		Depth. (m)	Accuracy (m)		
		10	± 0.6		
		30	± 0.8		
		100	± 1.5		
A2	± 20 m	= 1 + 2 % depth		Full area search undertaken. Significant seafloor features detected ² and depths measured.	Controlled, systematic survey achieving position and depth accuracy less than ZOC A1 and using a modern survey echosounder and a sonar or mechanical sweep system.
		Depth. (m)	Accuracy (m)		
		10	± 1.2		
		30	± 1.6		
		100	± 3.0		
B	± 50 m	= 1 + 2 % depth		Full area search not achieved; uncharted features, hazardous to surface navigation are not expected but may exist.	Controlled, systematic survey achieving similar depth but lesser position accuracies than ZOCA2, using a modern survey echosounder , but no sonar or mechanical sweep system.
		Depth. (m)	Accuracy (m)		
		10	± 1.2		
		30	± 1.6		
		100	± 3.0		
C	± 500 m	= 2 + 5 % depth		Full area search not achieved, depth anomalies may be expected.	Low accuracy survey or data collected on an opportunity basis such as soundings on passage.
		Depth. (m)	Accuracy (m)		
		10	± 2.5		
		30	± 3.5		
		100	± 7.0		
D	worse than ZOC C	Worse than ZOC C		Full area search not achieved, large depth anomalies may be expected.	Poor quality data or data that cannot be quality assessed due to lack of information.
U	Unassessed - The quality of the bathymetric data has yet to be assessed				

1 - The allocation of a ZOC indicates that particular data meets minimum criteria for position and depth accuracy and seafloor coverage defined in this Table. ZOC categories reflect a charting standard and not just a hydrographic survey standard. Depth and position accuracies specified for each ZOC category refer to the errors of the final depicted soundings and include not only survey errors but also other errors introduced in the chart production process.

2 - Significant bottom features are defined as those rising above depicted depths by more than:

	Depth	Significant feature
a.	<40 m	2 m
b.	>40 m	10 % depth

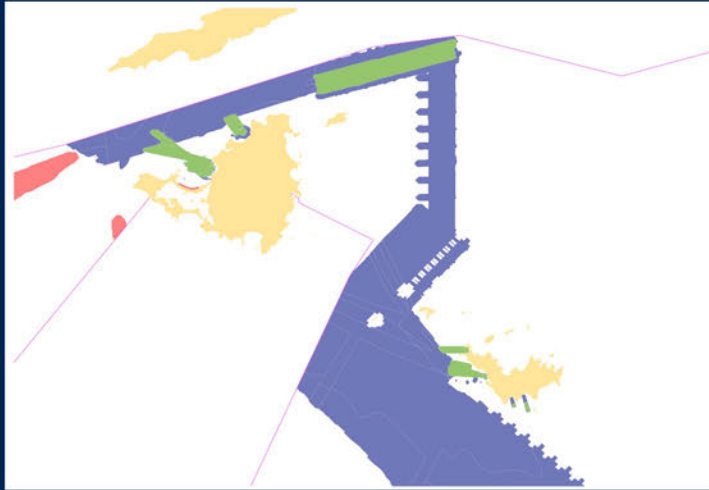
A full seafloor search indicates that a systematic survey was conducted using detection systems, depth measurement systems, procedures, and

trained personnel designed to detect and measure depths on significant seafloor features. Significant features are included on the chart as scale allows. It is impossible to guarantee that no significant feature could remain undetected, and significant features may have become present in the area since the time of the survey.

UNDERSTANDING KNOWLEDGE MAPS

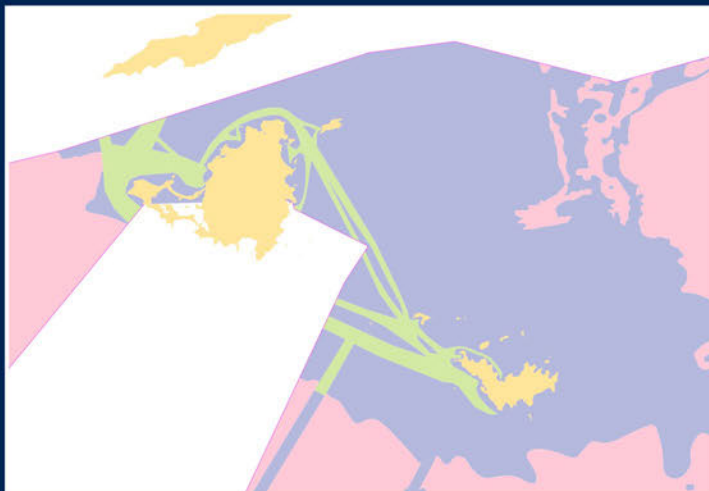
Current knowledge

Areas currently covered by categorized surveys:



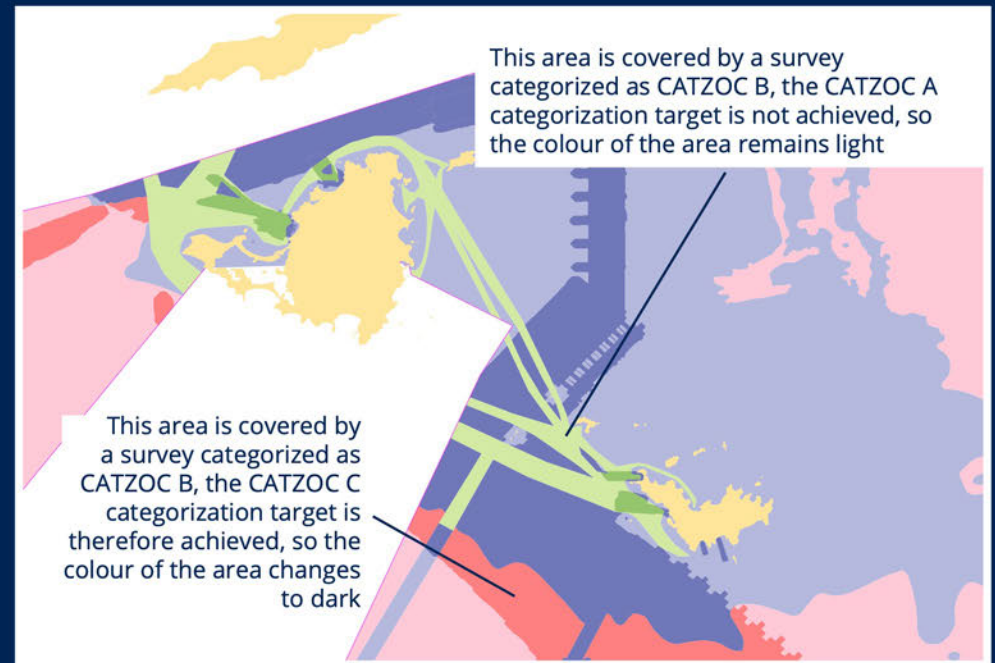
Target objectives

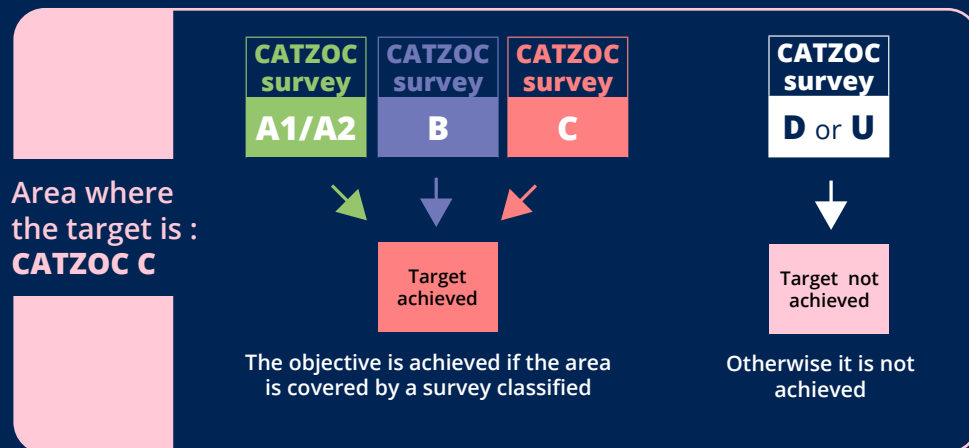
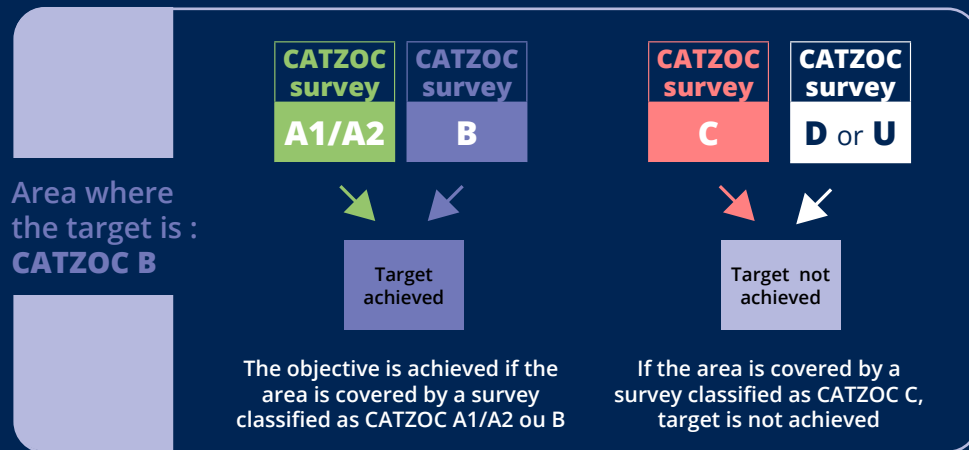
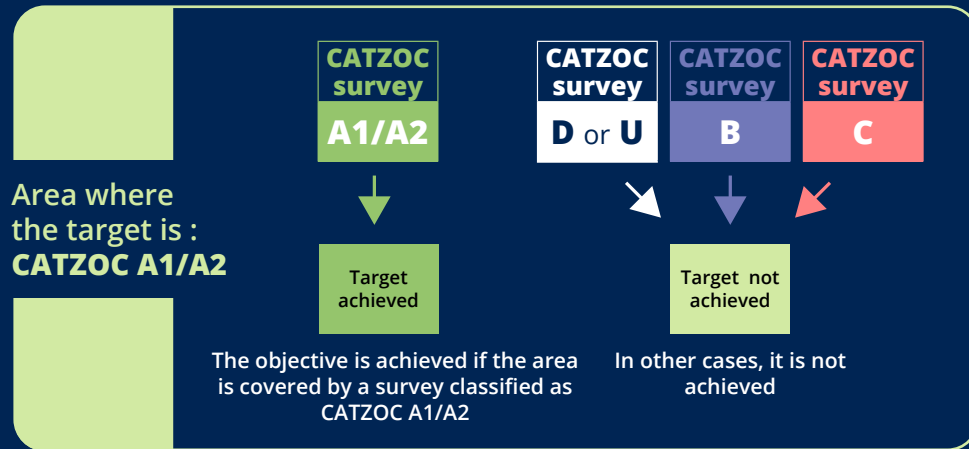
Areas covered by categorized surveys:



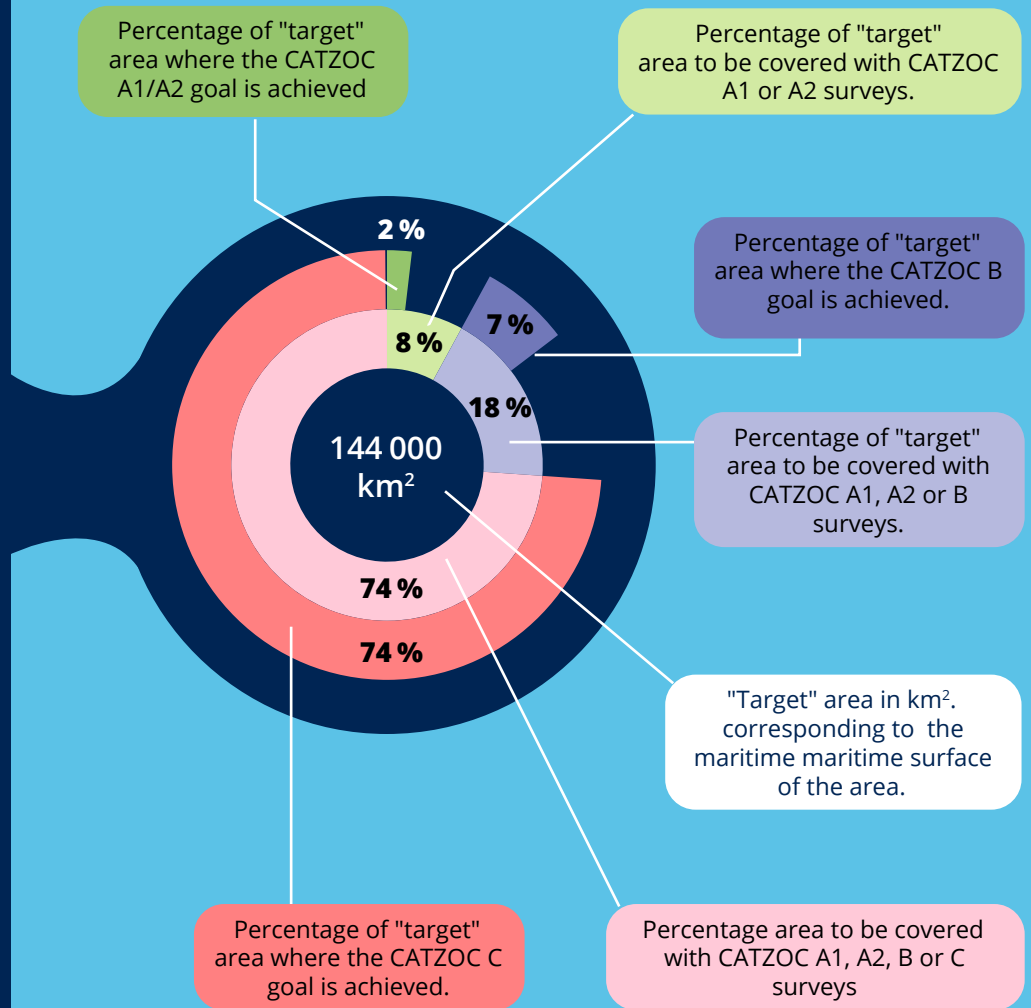
The state of knowledge

is the fusion of the current knowledge and the target objectives



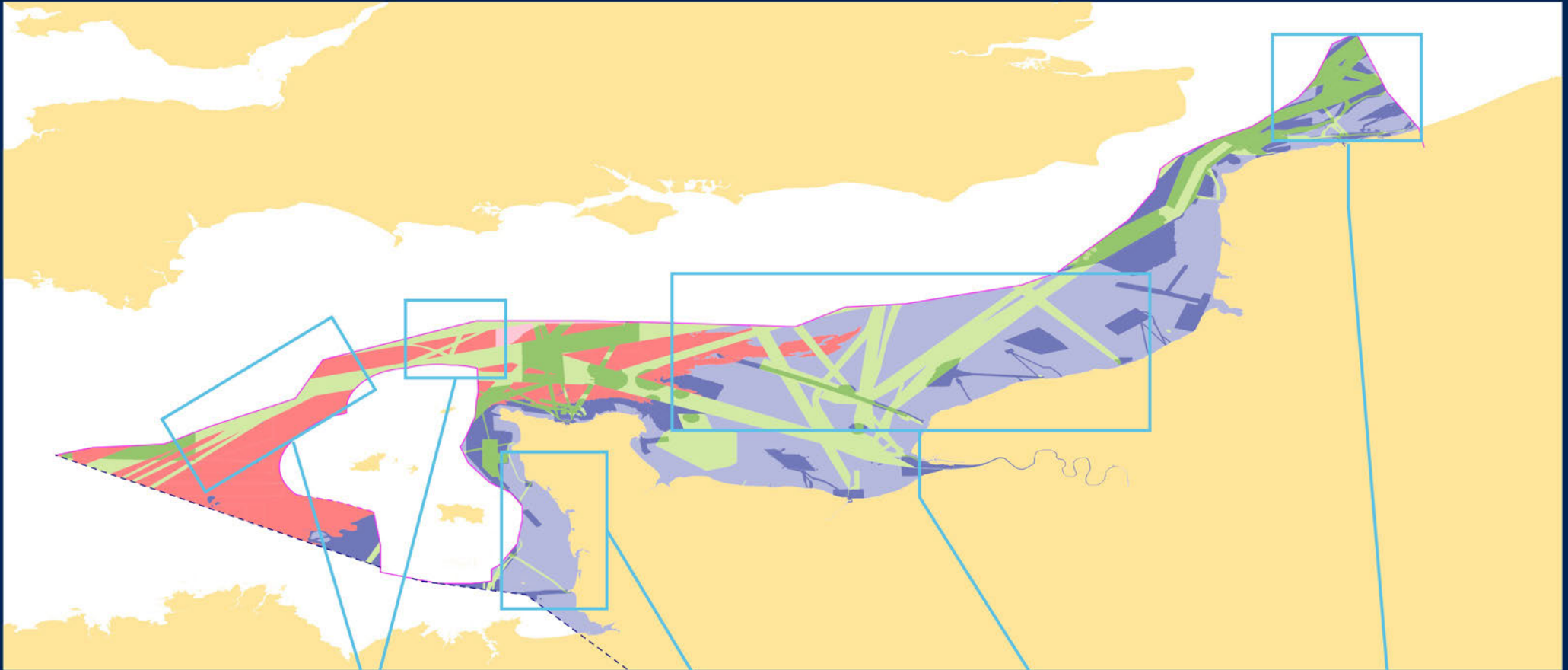


UNDERSTANDING THE "TARGET" GRAPH



Eastern Channel - North Sea façade

Target CATZOC A1/A2 Target CATZOC B Target CATZOC C
not achieved achieved not achieved achieved not achieved achieved



PRINCIPLE PROGRAMME



Survey of traffic separation schemes in the Channel

30 days

Continuation of the survey from Lannion to Raz Blanchard

20 days

ORE survey in Normandy

70 days

Periodic surveys of evolving areas in the Pas de Calais traffic separation schemes

30 days

KNOWLEDGE TARGET

Distribution of knowledge target by quality level (%)	Surface (km ²)	CATZOC A1 / A2	CATZOC B	CATZOC C
EEZ and legal extension of the continental shelf	28 700	32,8 %	50 %	17,2 %

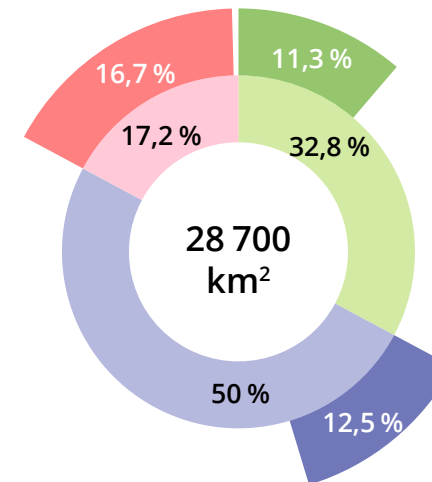
KNOWLEDGE STATUS

Distribution of the area by quality level (%)	CATZOC A1 / A2	CATZOC B	CATZOC C
Knowledge status in 2017	10,5 %	12,3 %	16,6 %
Knowledge status in 2020	11,3 %	12,5 %	16,7 %
Knowledge status in 2024 (forecasts)	12,6 %	12,9 %	17 %

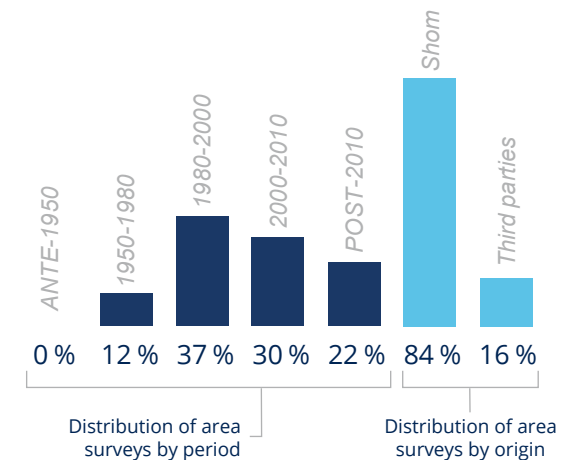
Some highlights for the region

- 308 days of surveys carried out by Shom between 2017 and 2020.
- Shom surveys cover 84% of the objectives achieved.
- Every 2 years a survey is carried out in the Pas de Calais to monitor the evolution of sand dunes.

2020 TARGET CHART

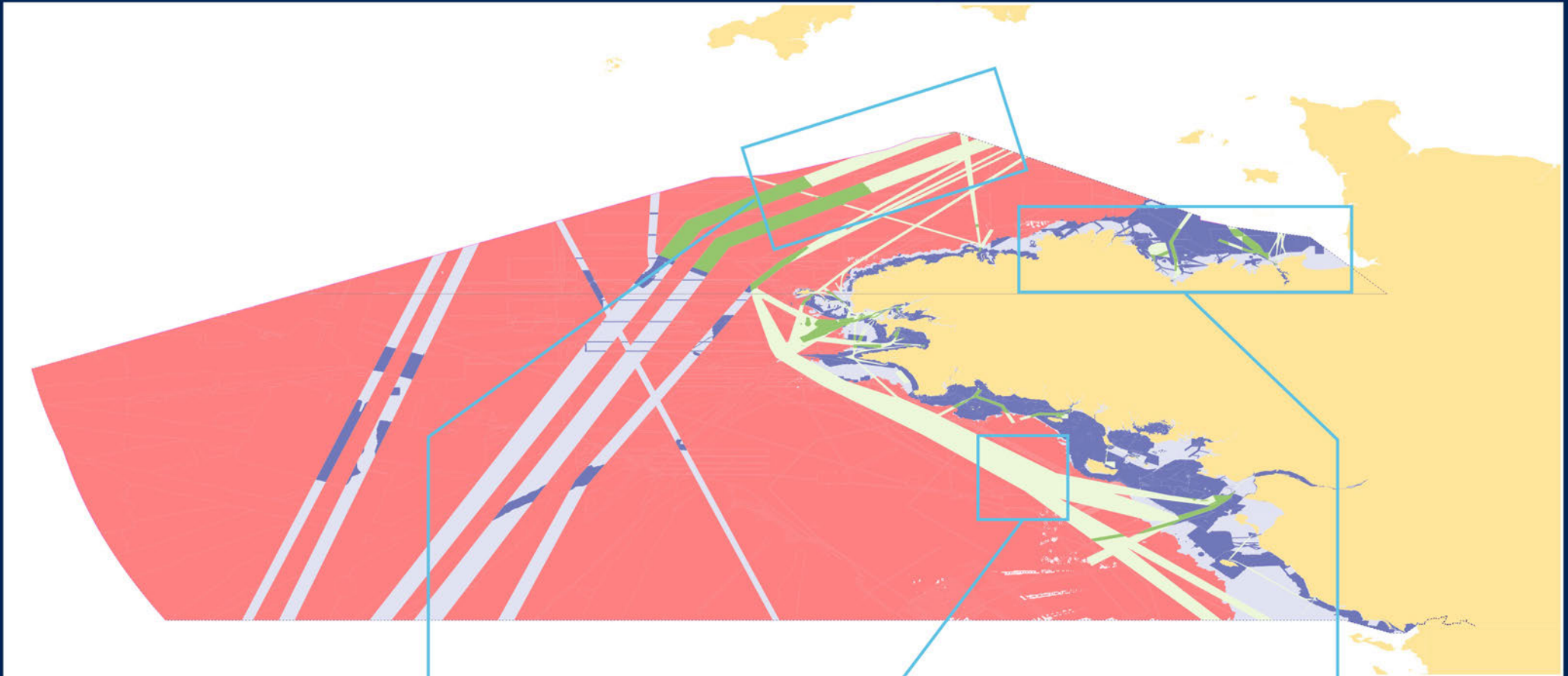


KNOWLEDGE DISTRIBUTION 2020



North Atlantic - Western Channel façade

Target CATZOC A1/A2		Target CATZOC B		Target CATZOC C	
not achieved	achieved	not achieved	achieved	not achieved	achieved



PRINCIPLE PROGRAMME



Survey of traffic separation schemes in the Channel

20 days

ORE survey in South Brittany

40 days

Continuation of the survey from Lannion to Raz Blanchard

20 days

KNOWLEDGE TARGET

Distribution of knowledge target by quality level (%)	Surface (km ²)	CATZOC A1 / A2	CATZOC B	CATZOC C
EEZ and legal extension of the continental shelf	144 000	7,9 %	18,2 %	73,9 %

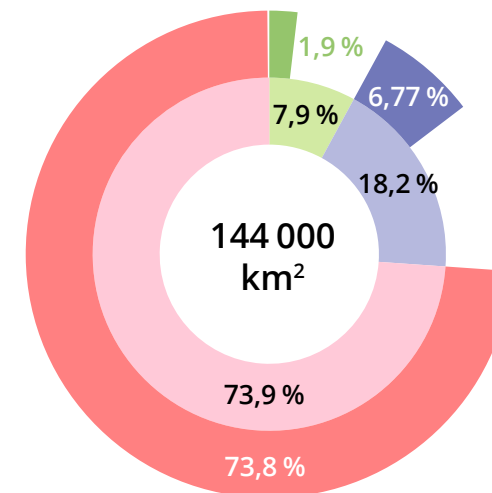
KNOWLEDGE STATUS

Distribution of the area by quality level (%)	CATZOC A1 / A2	CATZOC B	CATZOC C
Knowledge status in 2017	0,5 %	6,5 %	73,8 %
Knowledge status in 2020	1,9 %	6,7 %	73,8 %
Knowledge status in 2024 (forecasts)	2 %	6,8 %	73,9 %

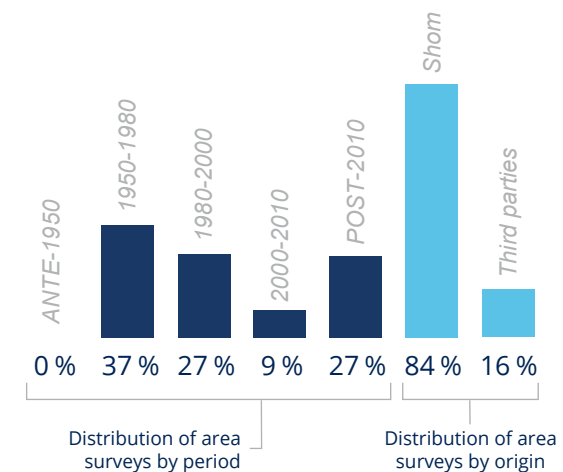
Some highlights for the region

- 210 days of surveys carried out by Shom between 2017 and 2020.
- 3,000 km² are covered by Lidar data classified as CATZOC B.
- In 2018, the BH2 Borda carried out a hydrographic survey in Vendée.
- This survey covered 15 km² in CATZOC A1 and 6 km² in CATZOC B in 19 days, or 0.01% of the total area.

2020 TARGET CHART

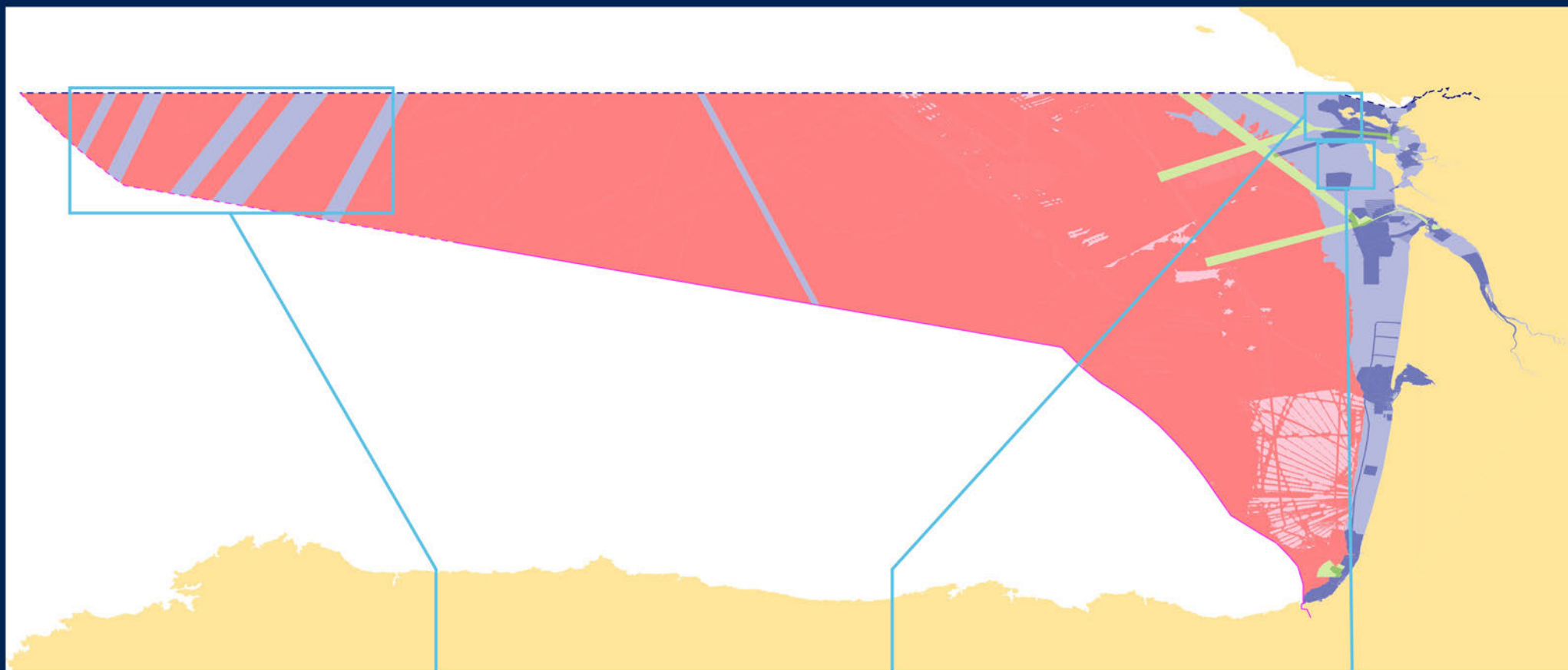


KNOWLEDGE DISTRIBUTION 2020



French Metropole South Atlantic façade

Target CATZOC A1/A2 Target CATZOC B Target CATZOC C
not achieved achieved not achieved achieved not achieved achieved



PRINCIPLE PROGRAMME



Passage surveys

10 days

HOMONIM campaign

30 days

Hydrographic survey in Vendée

30 days

KNOWLEDGE TARGET

Distribution of knowledge target by quality level (%)	Surface (km ²)	CATZOC A1 / A2	CATZOC B	CATZOC C
EEZ and legal extension of the continental shelf	88 600	2 %	14,5 %	83,5 %

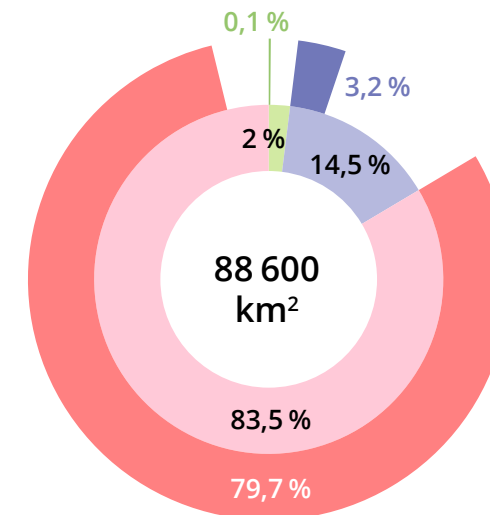
KNOWLEDGE STATUS

Distribution of the area by quality level (%)	CATZOC A1 / A2	CATZOC B	CATZOC C
Knowledge status in 2017	0,1 %	2,9	79,6 %
Knowledge status in 2020	0,1 %	3,2 %	79,7 %
Knowledge status in 2024 (forecasts)	0,2 %	3,4 %	80 %

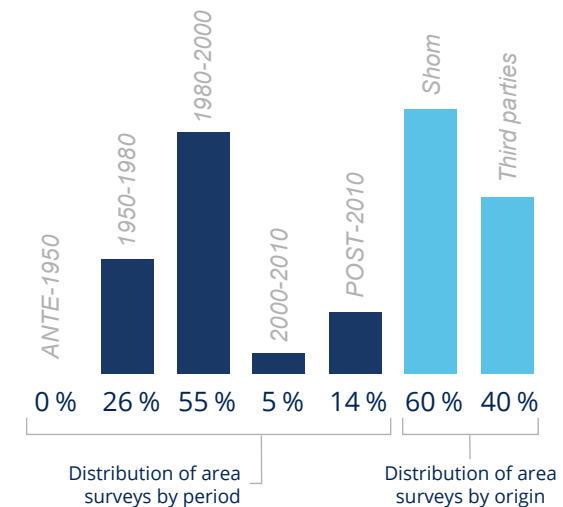
Some highlights for the region

- 133 days of surveys carried out by Shom between 2017 and 2020.
- 40% of the targets achieved correspond to surveys carried out by third parties.
- In 2018, an upgraded transit of the BHO Beutemps-Beaupré covered
- 1,200 km² categorised as CATZOC C, by mean depth of 4,700 m.

2020 TARGET CHART

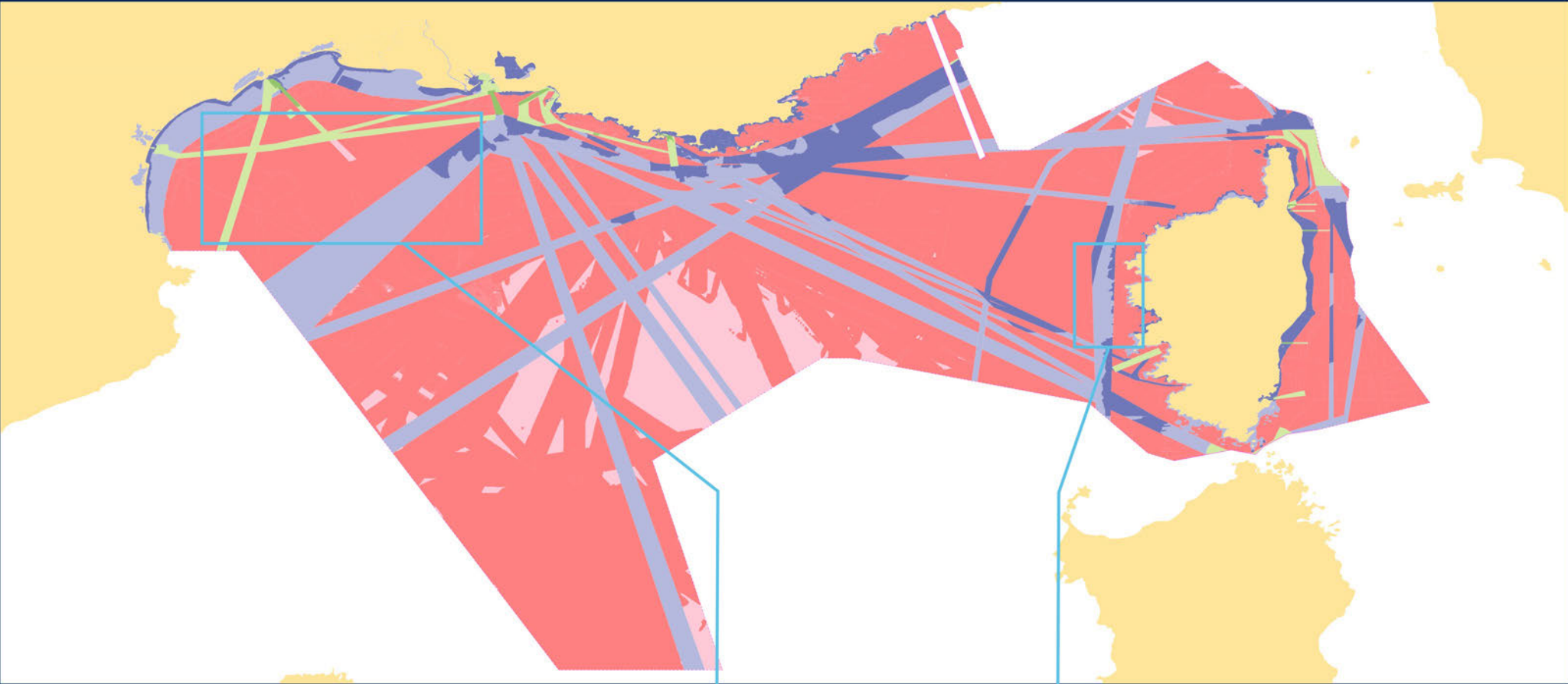


KNOWLEDGE DISTRIBUTION 2020



Mediterranean façade

Target CATZOC A1/A2		Target CATZOC B		Target CATZOC C	
not achieved	achieved	not achieved	achieved	not achieved	achieved



PRINCIPLE PROGRAMME



ORE survey

60 days

Hydrographic survey in Corsica

30 days

KNOWLEDGE TARGET

Distribution of knowledge target by quality level (%)	Surface (km ²)	CATZOC A1 / A2	CATZOC B	CATZOC C
EEZ and legal extension of the continental shelf	111 000	2,3 %	27,2 %	70,5 %

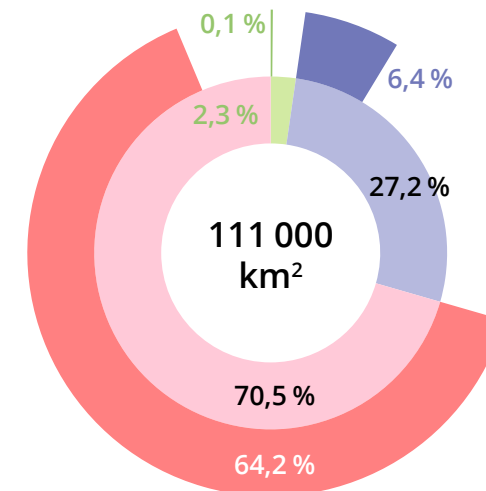
KNOWLEDGE STATUS

Distribution of the area by quality level (%)	CATZOC A1 / A2	CATZOC B	CATZOC C
Knowledge status in 2017	0,1 %	6,4 %	63,1 %
Knowledge status in 2020	0,1 %	6,4 %	64,2 %
Knowledge status in 2024 (forecasts)	0,2 %	6,5 %	67 %

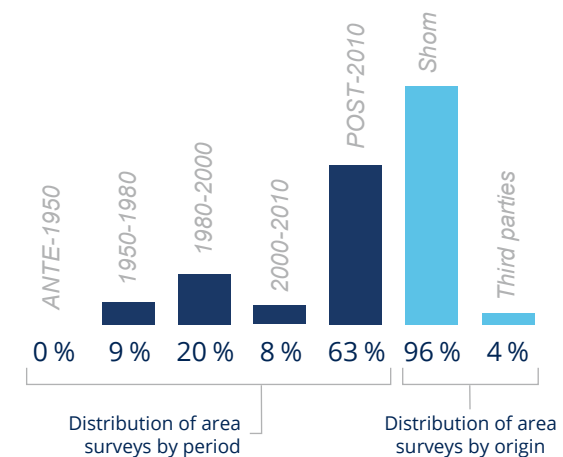
Some highlights for the region

- 91 days of surveys carried out by Shom between 2017 and 2020.
- 96% of the objectives reached are achieved by Shom surveys.
- 1,875 km² are covered by Lidar data classified as CATZOC B.
- In 2018, the BH2 Laplace carried out a hydrographic survey of Macinaggio (Corsica). This survey covered 4 km² in CATZOC A1 and 13 km² in CATZOC B in 5 days, representing 0.01% of the total area.

2020 TARGET CHART

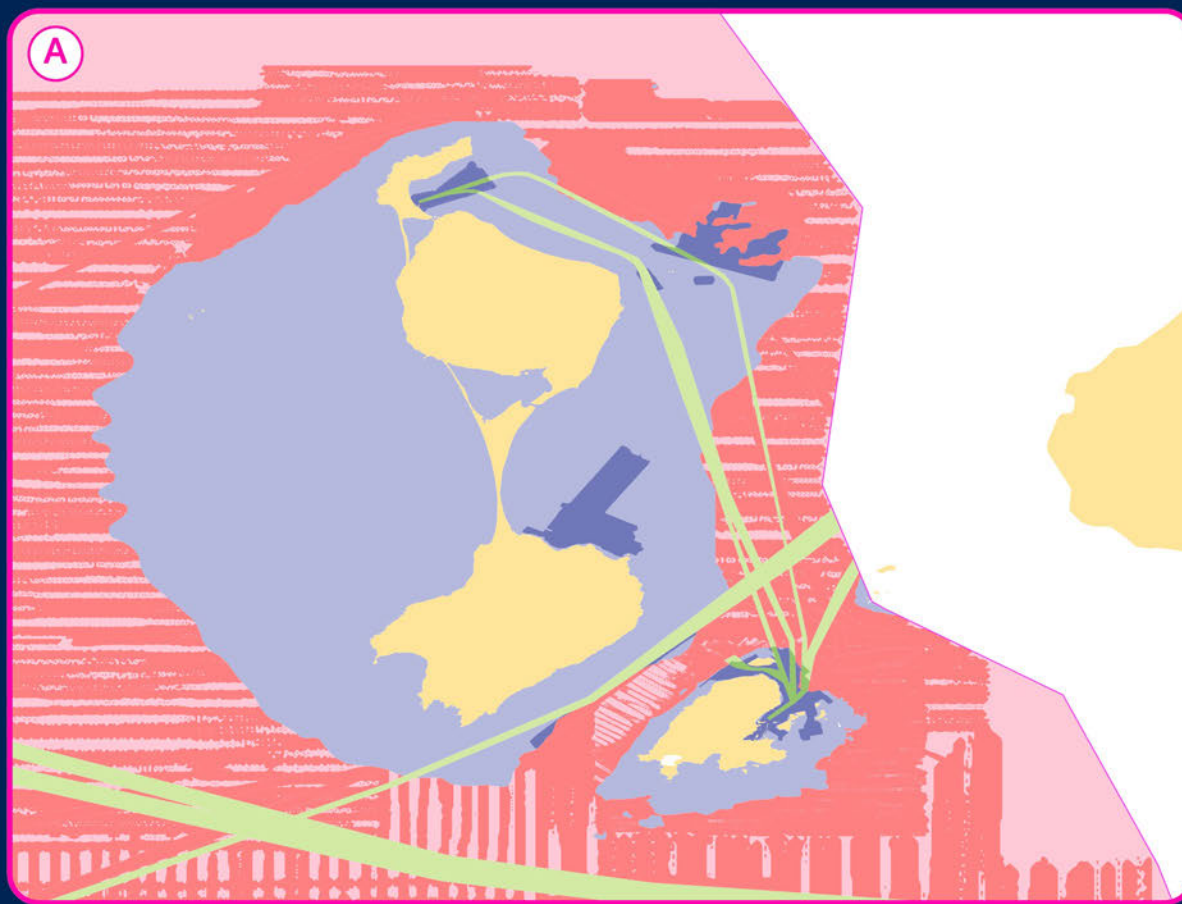
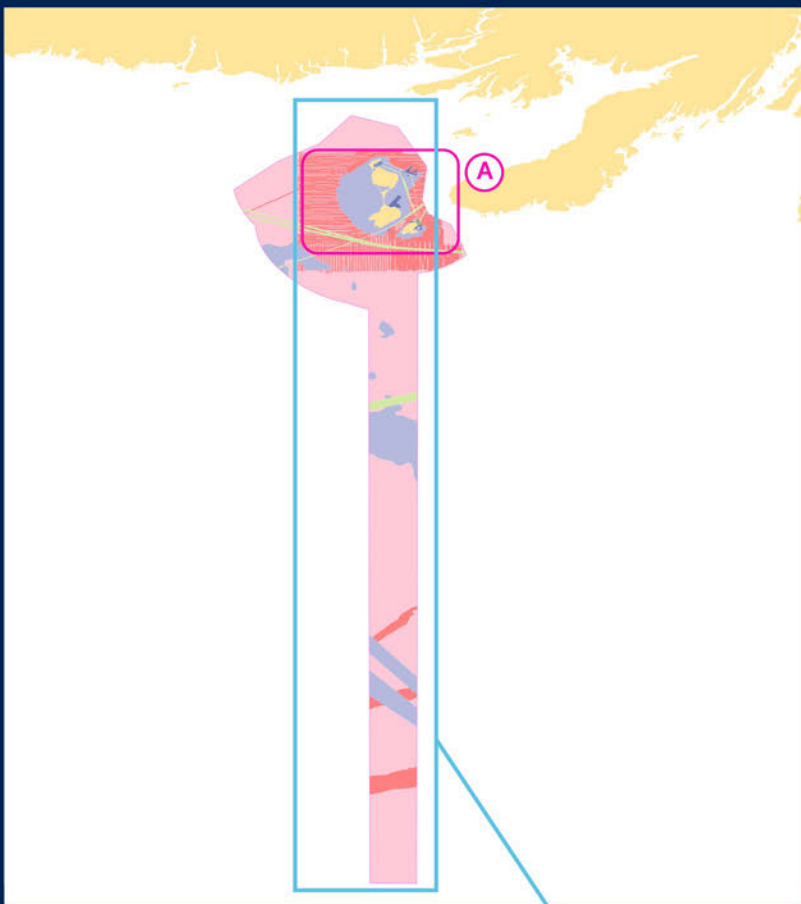


KNOWLEDGE DISTRIBUTION 2020



Saint-Pierre and Miquelon

Target CATZOC A1/A2 Target CATZOC B Target CATZOC C
not achieved achieved not achieved achieved not achieved achieved



PRINCIPLE PROGRAMME

Hydrographic and sedimentological survey



3 000
km² *Collected in 2018 and being processed*

KNOWLEDGE TARGET

Distribution of knowledge target by quality level (%)	Surface (km ²)	CATZOC A1 / A2	CATZOC B	CATZOC C
EEZ and legal extension of the continental shelf	12 500	2,8 %	17,3 %	80 %

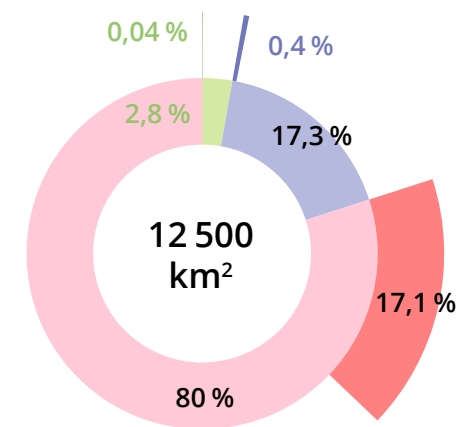
KNOWLEDGE STATUS

Distribution of the area by quality level (%)	CATZOC A1 / A2	CATZOC B	CATZOC C
Knowledge status in 2017	0,04 %	0,4 %	17,1 %
Knowledge status in 2020	0,04 %	0,4 %	17,1 %
Knowledge status in 2024 (forecasts)	0,06 %	0,5 %	18 %

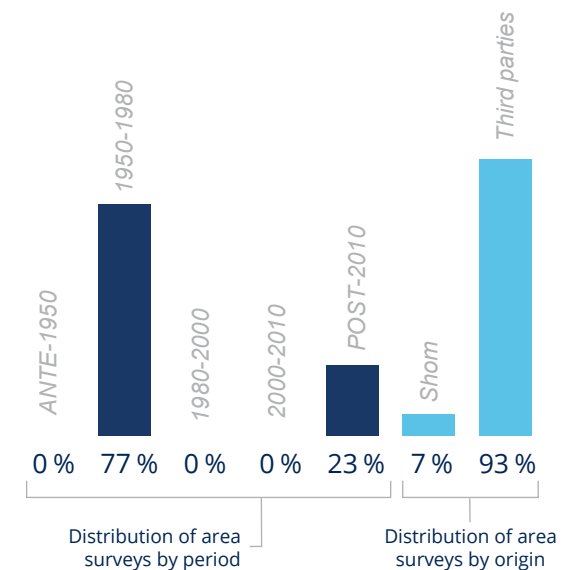
Some highlights for the region

- 42 days of surveys carried out by Shom between 2017 and 2020.
- 93% of the targets achieved are carried out by third parties.
- In October 2015, the University of Hamburg conducted a seismic survey on board the MARIA S. MERIAN for 5 days. The data transmitted to Shom in 2016, categorised as CATZOC C, allows to cover 450 km² of the area by depths between 400 and 4,000 m.

2020 TARGET CHART

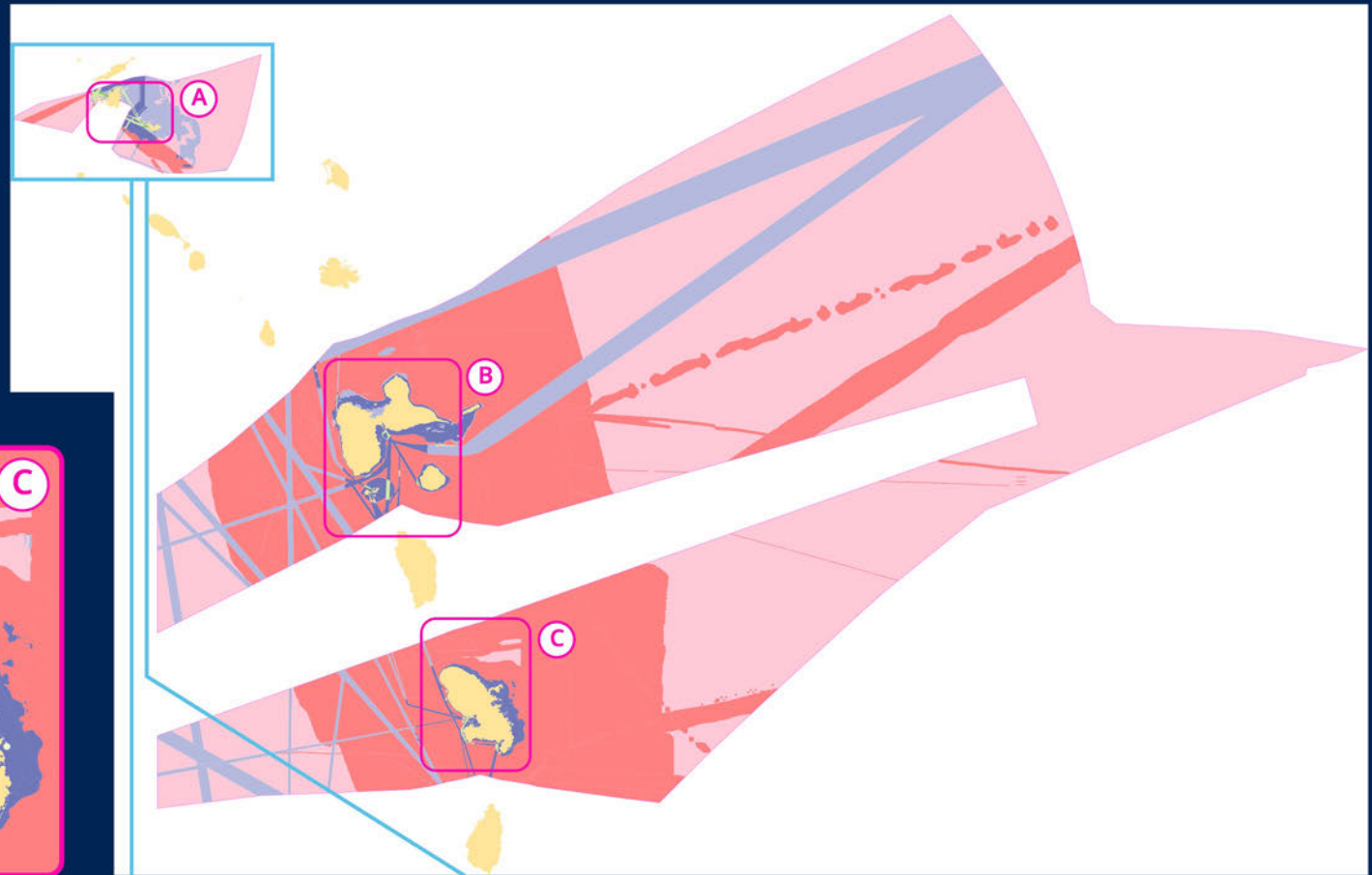
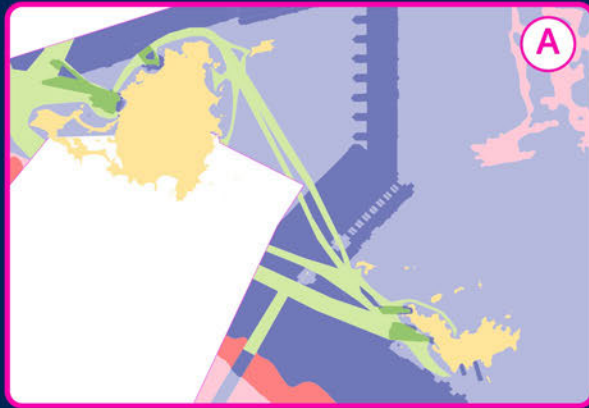


KNOWLEDGE DISTRIBUTION 2020



Overseas West Indies

Target CATZOC A1/A2		Target CATZOC B		Target CATZOC C	
not achieved	achieved	not achieved	achieved	not achieved	achieved



PRINCIPLE PROGRAMME



Lidar survey in Saint-Martin and Saint-Barthélemy

380 km²

Collected in 2019 and being processed

20 days

Hydrographic survey in Saint-Martin and Saint-Barthélemy

Occasional works in Guadeloupe and Martinique

30 days

KNOWLEDGE TARGET

Distribution of knowledge target by quality level (%)	Surface (km ²)	CATZOC A1 / A2	CATZOC B	CATZOC C
EEZ and legal extension of the continental shelf	151 500	0,2 %	13,2 %	86,7 %

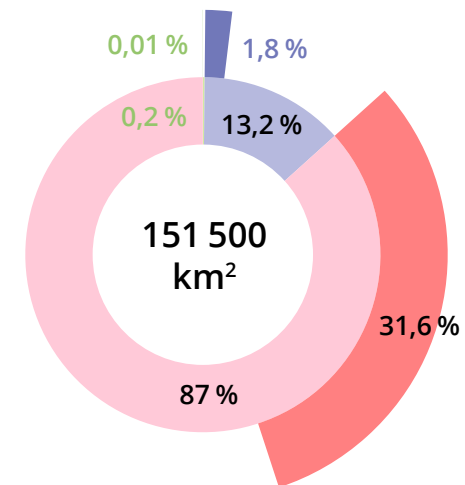
KNOWLEDGE STATUS

Distribution of the area by quality level (%)	CATZOC A1 / A2	CATZOC B	CATZOC C
Knowledge status in 2017	0,01 %	1,8 %	31,6 %
Knowledge status in 2020	0,01 %	1,8 %	31,6 %
Knowledge status in 2024 (forecasts)	0,02 %	2 %	33 %

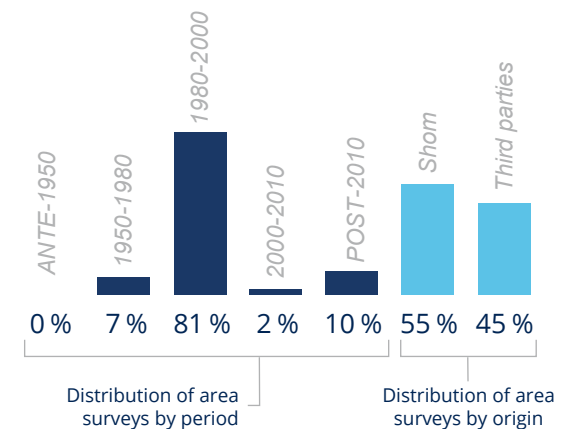
Some highlights for the region

- 49 days of surveys carried out by Shom between 2017 and 2020.
- 1,200 km² are covered by Lidar data classified as CATZOC B.
- 96.5% of the area has a depth deeper than 200 m.

2020 TARGET CHART



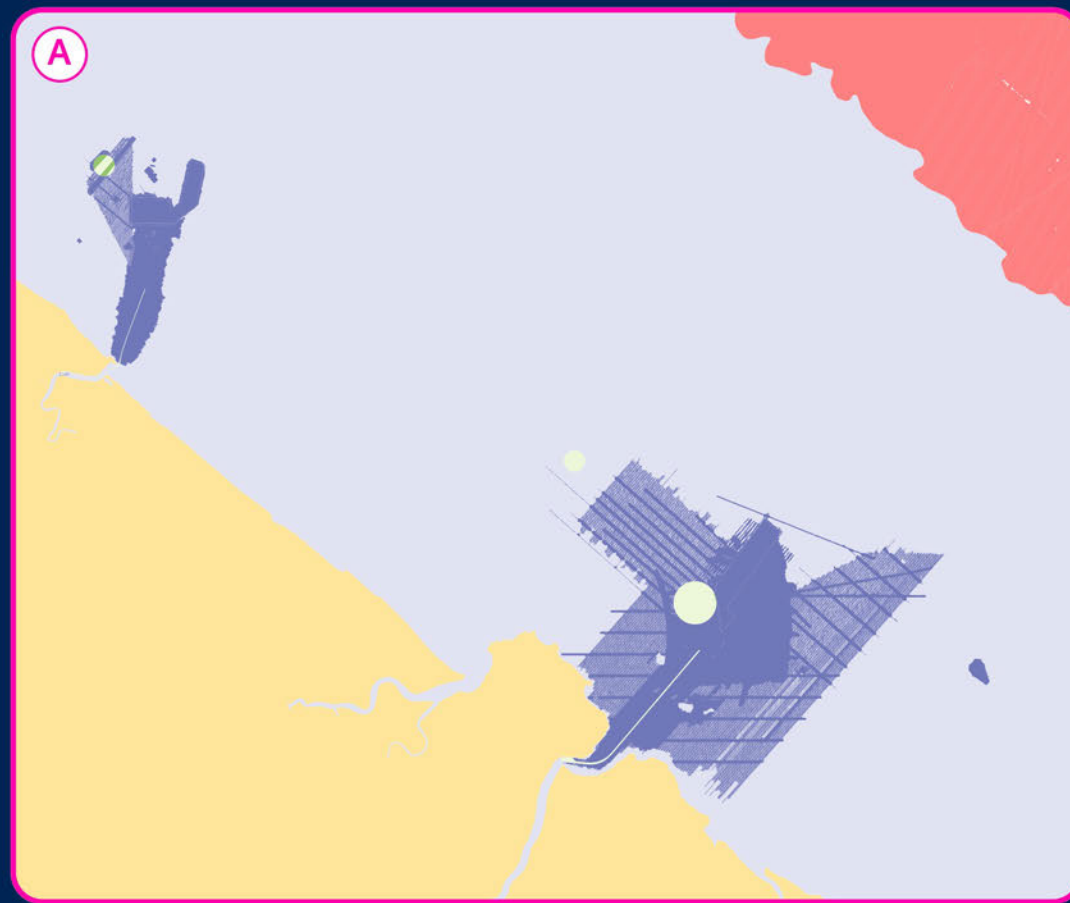
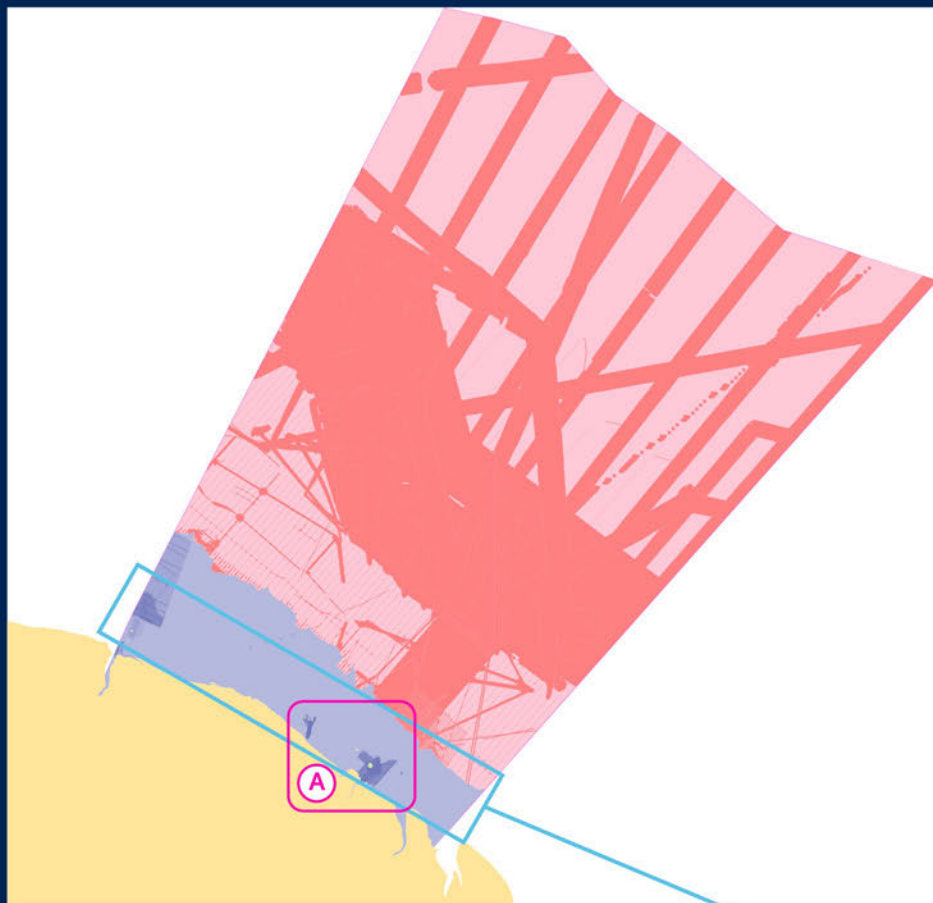
KNOWLEDGE DISTRIBUTION 2020



Overseas

French Guiana

Target CATZOC A1/A2		Target CATZOC B		Target CATZOC C	
not achieved	achieved	not achieved	achieved	not achieved	achieved



PRINCIPLE PROGRAMME



Hydrographic survey of the Mana River approaches and passage survey

350 km²

Collected in 2018 and being processed

20 days

Continuation of the coastal survey in French Guiana, particularly in the river area, to enable government vessels to play their full role in the government's action at sea

KNOWLEDGE TARGET

Distribution of knowledge target by quality level (%)	Surface (km ²)	CATZOC A1 / A2	CATZOC B	CATZOC C
EEZ and legal extension of the continental shelf	202 000	0,2 %	13,2 %	86,7 %

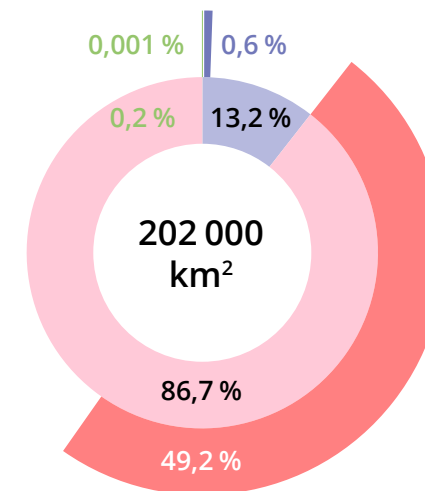
KNOWLEDGE STATUS

Distribution of the area by quality level (%)	CATZOC A1 / A2	CATZOC B	CATZOC C
Knowledge status in 2017	0,001 %	0,6 %	49,1 %
Knowledge status in 2020	0,001 %	0,6 %	49,2 %
Knowledge status in 2024 (forecasts)	0,001 %	0,6 %	49,5 %

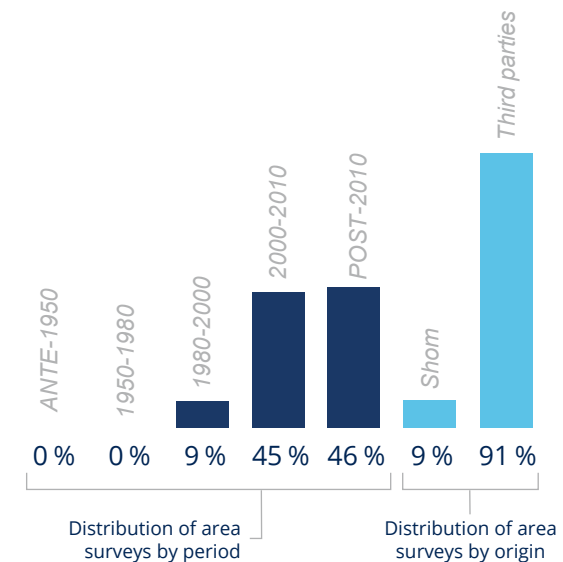
Some highlights for the region

- 49 days of surveys carried out by Shom between 2017 and 2020.
- 91% of the reached target relate to surveys carried out by third parties
- Latest Shom surveys carried out in 2018 to improve navigation safety of maritime patrol vessels.

2020 TARGET CHART

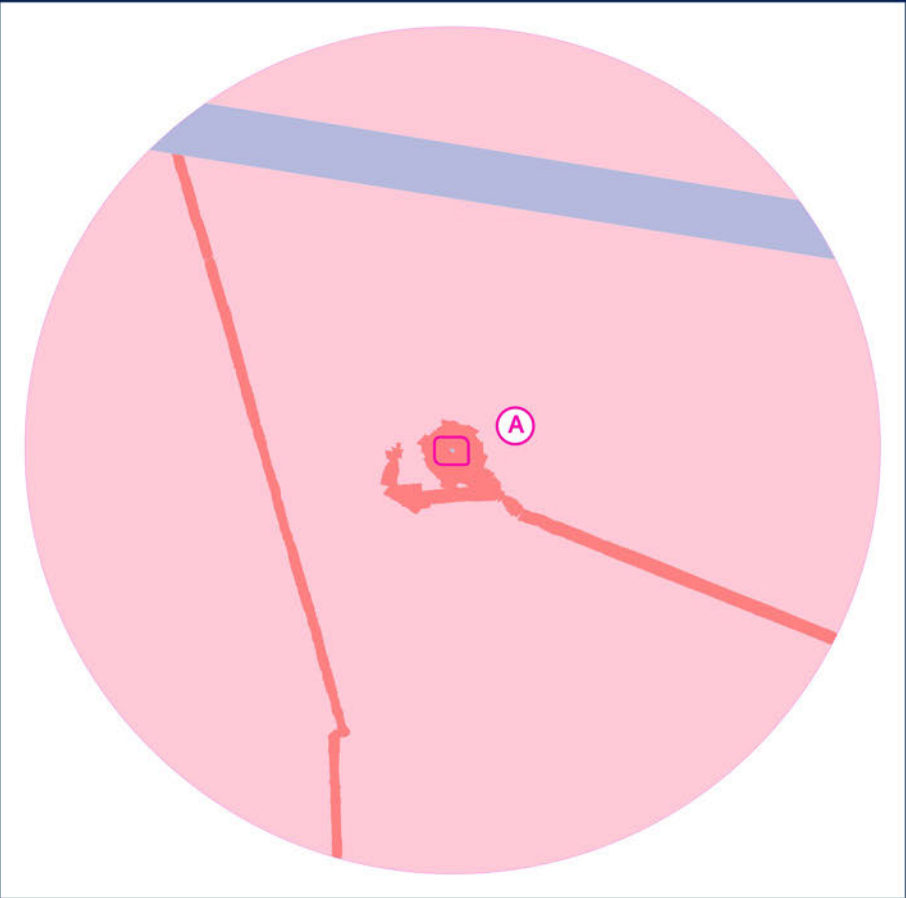


KNOWLEDGE DISTRIBUTION 2020



Overseas Clipperton

Target CATZOC A1/A2 Target CATZOC B Target CATZOC C
not achieved achieved not achieved achieved not achieved achieved



**PRINCIPLE
PROGRAMME**



Opportunity surveys

15-30
days

KNOWLEDGE TARGET

Distribution of knowledge target by quality level (%)	Surface (km ²)	CATZOC A1 / A2	CATZOC B	CATZOC C
EEZ and legal extension of the continental shelf	438 000	-	6,2 %	93,8 %

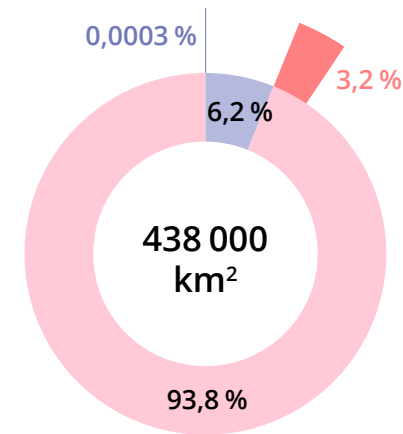
KNOWLEDGE STATUS

Distribution of the area by quality level (%)	CATZOC A1 / A2	CATZOC B	CATZOC C
Knowledge status in 2017	-	0,0003 %	3,2 %
Knowledge status in 2020	-	0,0003 %	3,2 %
Knowledge status in 2024 (forecasts)	-	0,0003 %	3,3 %

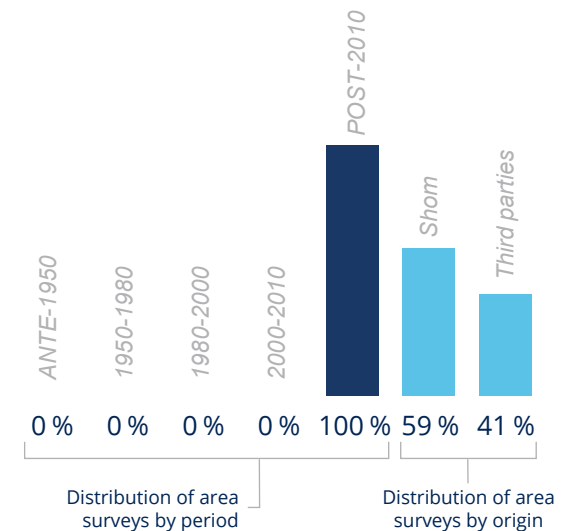
Some highlights for the region

- No survey carried out by Shom between 2017 and 2020.
- 59% of the targets reached relate to surveys carried out by Shom.
- In 2012, Shom took advantage of the transit of the M/V L'Atalante between Ecuador and Mexico to carry out a 4-day bathymetric survey. The data covers 4,900 km² categorised as CATZOC B and 3,500 km² categorised as CATZOC C, representing approximately 2% of the area's surface.

2020 TARGET CHART



KNOWLEDGE DISTRIBUTION 2020



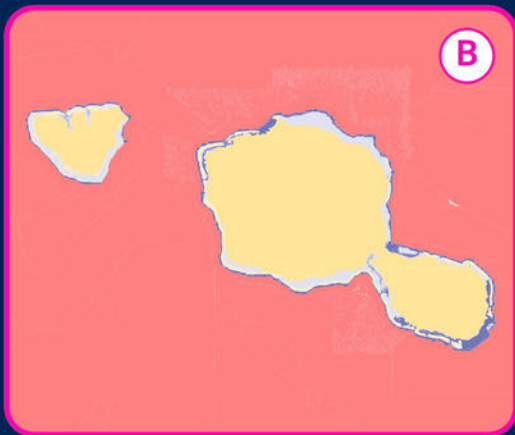
French Polynesia

! There is a hydrography master plan in French Polynesia which is maintained annually

Target CATZOC A1/A2		Target CATZOC B		Target CATZOC C	
not achieved	achieved	not achieved	achieved	not achieved	achieved



A



B



C



D

PRINCIPLE PROGRAMME



Surveys in Tuamotu, Austral Islands and passage surveys

39 700 km² Acquired in 2019 and being processed

Continuation of lagoon surveys (Shom's light means in the Pacific) and opportunity surveys according to the priorities defined by the French Polynesian hydrographic commission

170 days

KNOWLEDGE TARGET

Distribution of knowledge target by quality level (%)	Surface (km ²)	CATZOC A1 / A2	CATZOC B	CATZOC C
EEZ and legal extension of the continental shelf	4 843 000	0,001 %	0,3 %	99,7 %

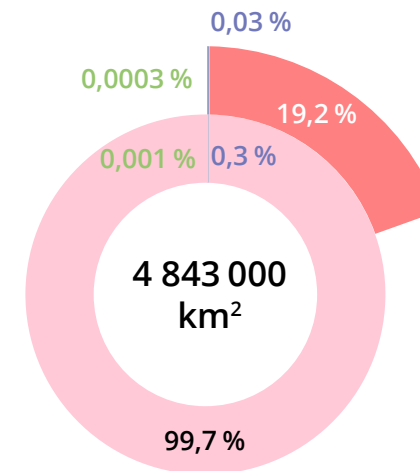
KNOWLEDGE STATUS

Distribution of the area by quality level (%)	CATZOC A1 / A2	CATZOC B	CATZOC C
Knowledge status in 2017	0,0003 %	0,03 %	19,2 %
Knowledge status in 2020	0,0003 %	0,03 %	19,2 %
Knowledge status in 2024 (forecasts)	0,0003 %	0,04 %	19,6 %

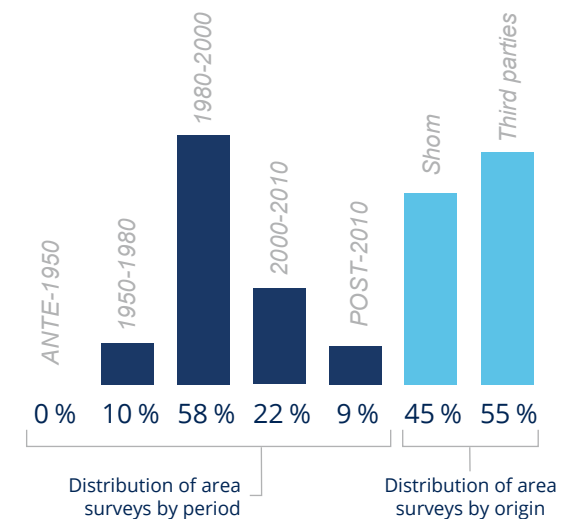
Some highlights for the region

- 196 days of surveys carried out by Shom between 2017 and 2020.
- 55% of the objectives achieved correspond to surveys carried out by third parties.
- In 2015, Shom carried out a 9-day bathymetric survey on board M/O L'Atalante. The data covers 5,700 km² categorised as CATZOC B and 25,000 km² categorised as CATZOC C.
- The surveys were carried out in coordination with the government of French Polynesia within the framework of hydrographic cooperation between the State and the government of French Polynesia.

2020 TARGET CHART

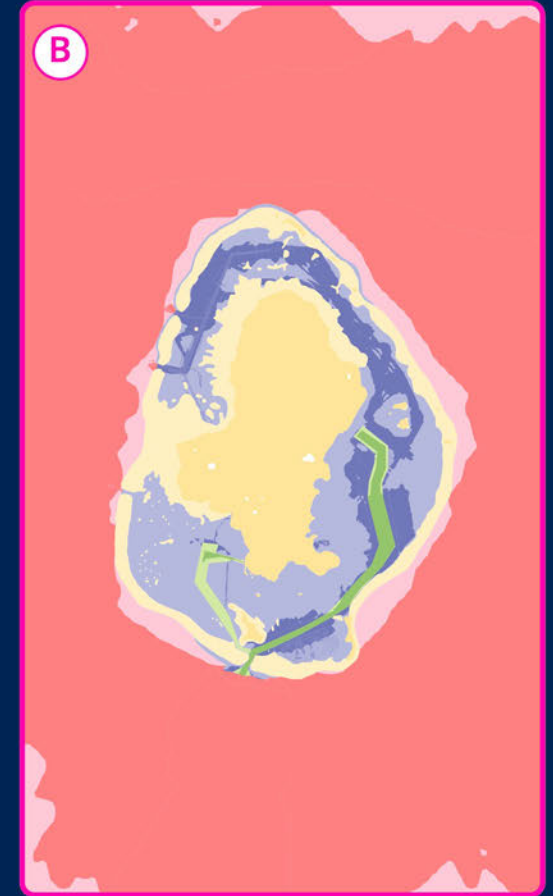
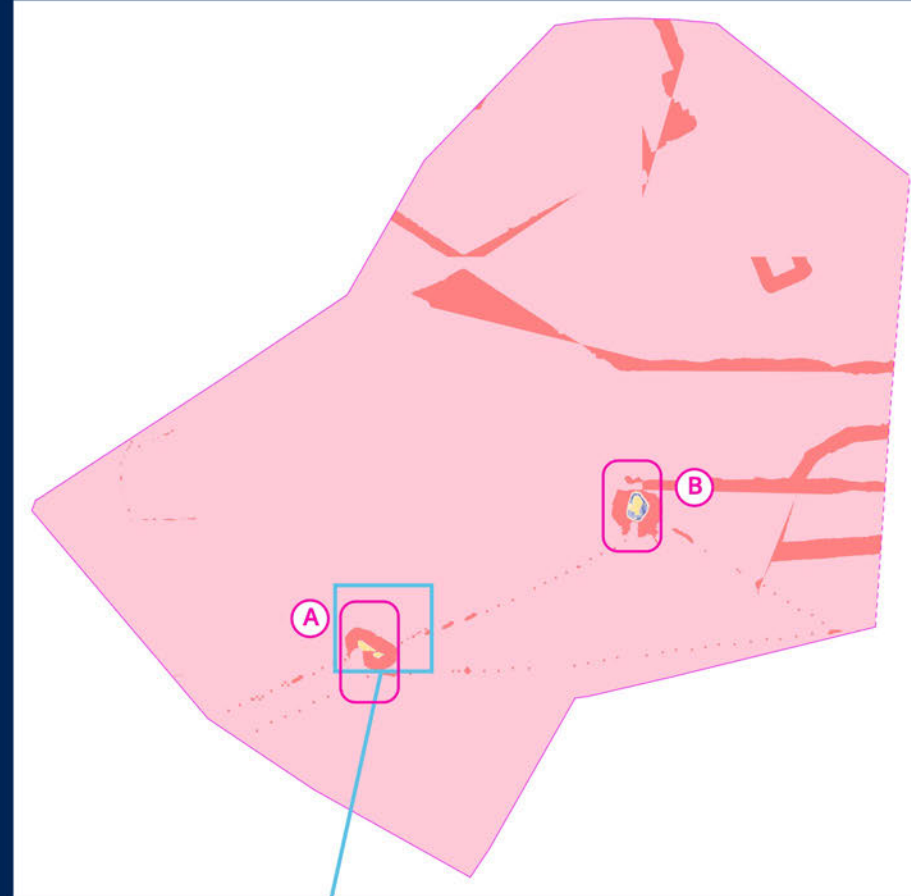


KNOWLEDGE DISTRIBUTION 2020



Wallis and Futuna

Target CATZOC A1/A2 Target CATZOC B Target CATZOC C
not achieved achieved not achieved achieved not achieved achieved



PRINCIPLE PROGRAMME



Surveys in Futuna and in transit

1 100 km² Collected in 2019 and being processed

Continuation of lagoon surveys (Shom's light means in the Pacific) and opportunity surveys

30 days

KNOWLEDGE TARGET

Distribution of knowledge target by quality level (%)	Surface (km ²)	CATZOC A1 / A2	CATZOC B	CATZOC C
EEZ and legal extension of the continental shelf	261 000	0,005 %	0,05 %	99,9 %

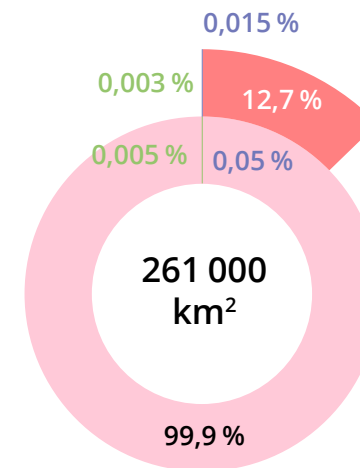
KNOWLEDGE STATUS

Distribution of the area by quality level (%)	CATZOC A1 / A2	CATZOC B	CATZOC C
Knowledge status in 2017	0,003 %	0,015 %	8,3 %
Knowledge status in 2020	0,003 %	0,015 %	12,7 %
Knowledge status in 2024 (forecasts)	0,003 %	0,015 %	13,4 %

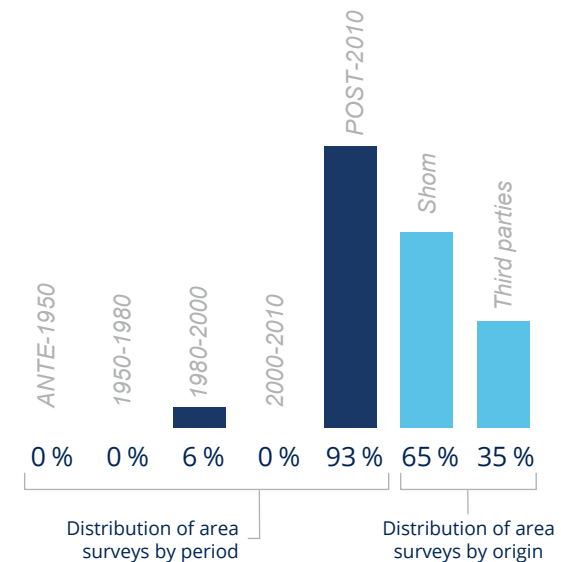
Some highlights for the region

- 7 days of surveys carried out by Shom between 2017 and 2020.
- 93% of the targets reached relate to surveys carried out after 2010.
- Last Shom survey completed in Futuna in 2019.

2020 TARGET CHART



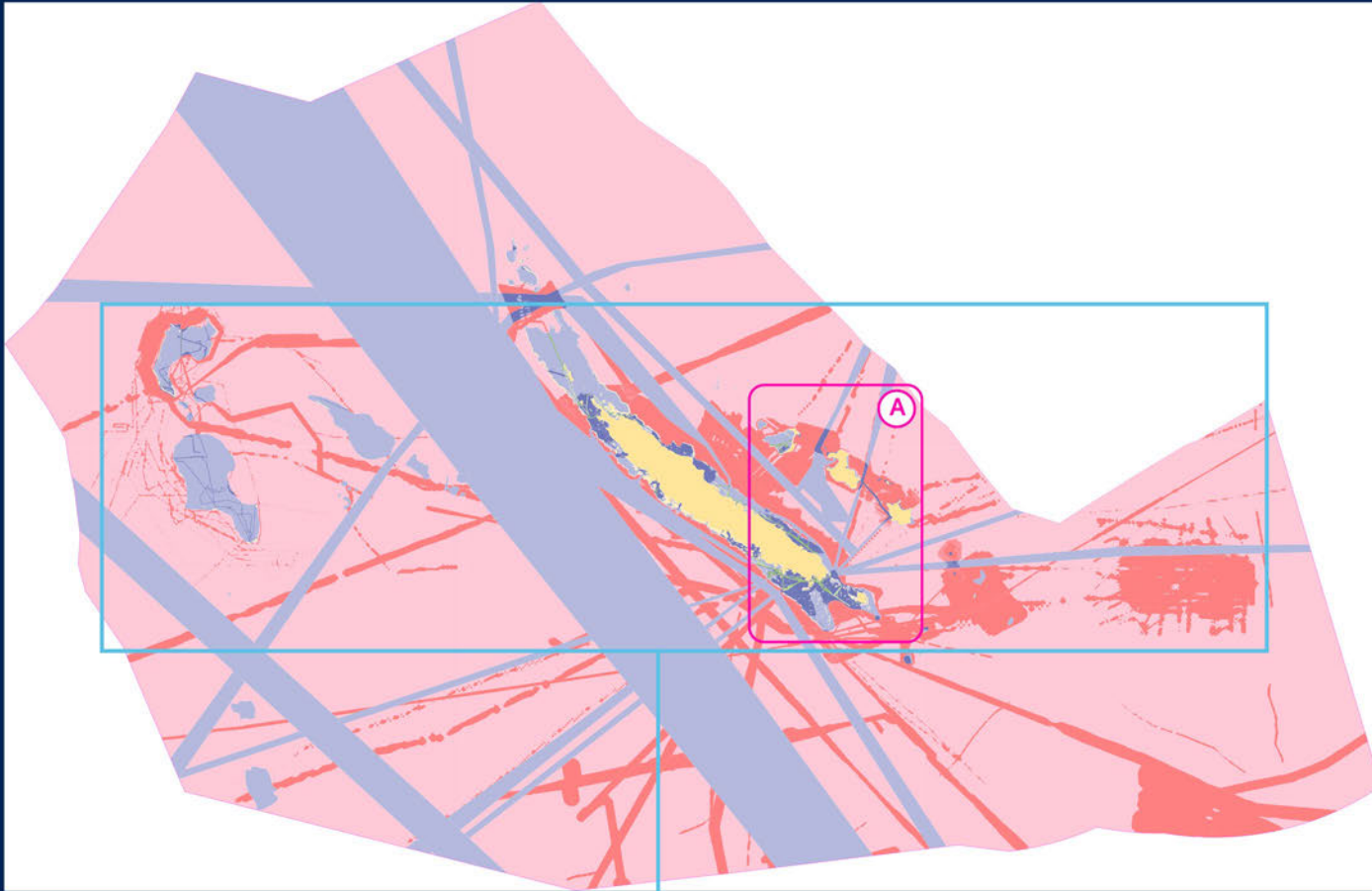
KNOWLEDGE DISTRIBUTION 2020



New Caledonia

! There is a hydrography master plan in New Caledonia which is maintained annually

Target CATZOC A1/A2		Target CATZOC B		Target CATZOC C	
not achieved	achieved	not achieved	achieved	not achieved	achieved



PRINCIPLE PROGRAMME



Surveys in Chesterfields and passage surveys

16 000 km² Collected in 2019 and being processed

Continued lagoon surveys (Shom's light means in the Pacific) and opportunity surveys.

280 days

KNOWLEDGE TARGET

Distribution of knowledge target by quality level (%)	Surface (km ²)	CATZOC A1 / A2	CATZOC B	CATZOC C
EEZ and legal extension of the continental shelf	1 445 000	0,1 %	27,6 %	72,3 %

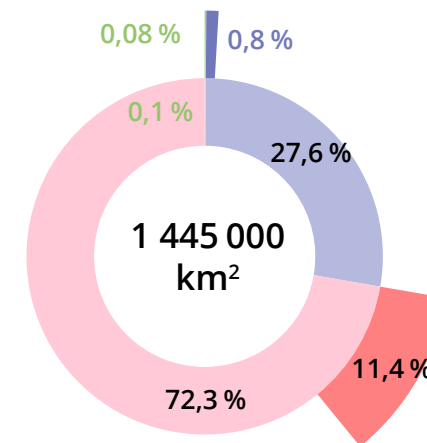
KNOWLEDGE STATUS

Distribution of the area by quality level (%)	CATZOC A1 / A2	CATZOC B	CATZOC C
Knowledge status in 2017	0,08 %	0,7 %	11,3 %
Knowledge status in 2020	0,08 %	0,8 %	11,4 %
Knowledge status in 2024 (forecasts)	0,09 %	0,85 %	11,4 %

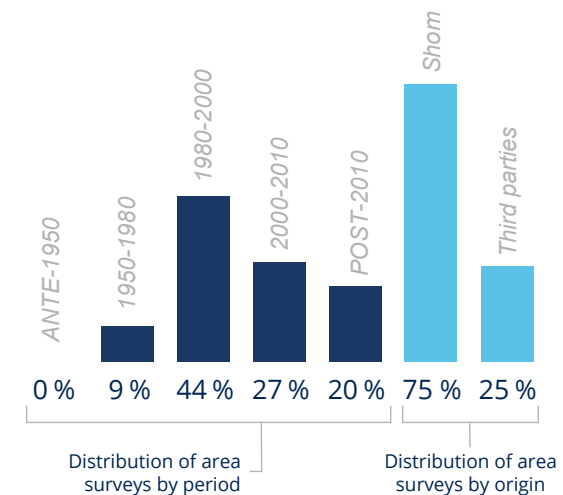
Some highlights for the region

- 308 days of surveys carried out by Shom between 2017 and 2020.
- The surveys are carried out in coordination with the Government of New Caledonia within the framework of hydrographic cooperation between the State and the Government of New Caledonia (March 2012 agreement linked to the transfer of powers).

2020 TARGET CHART

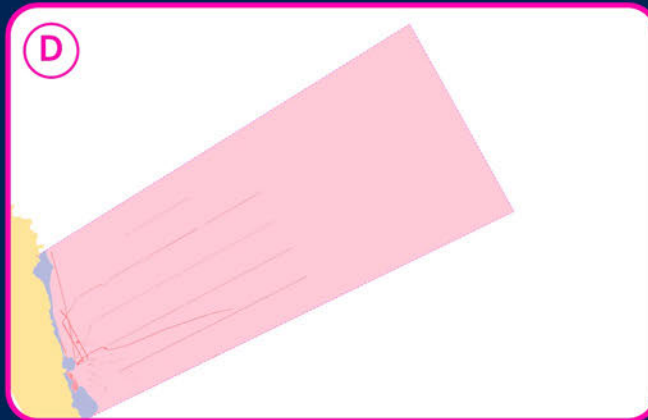
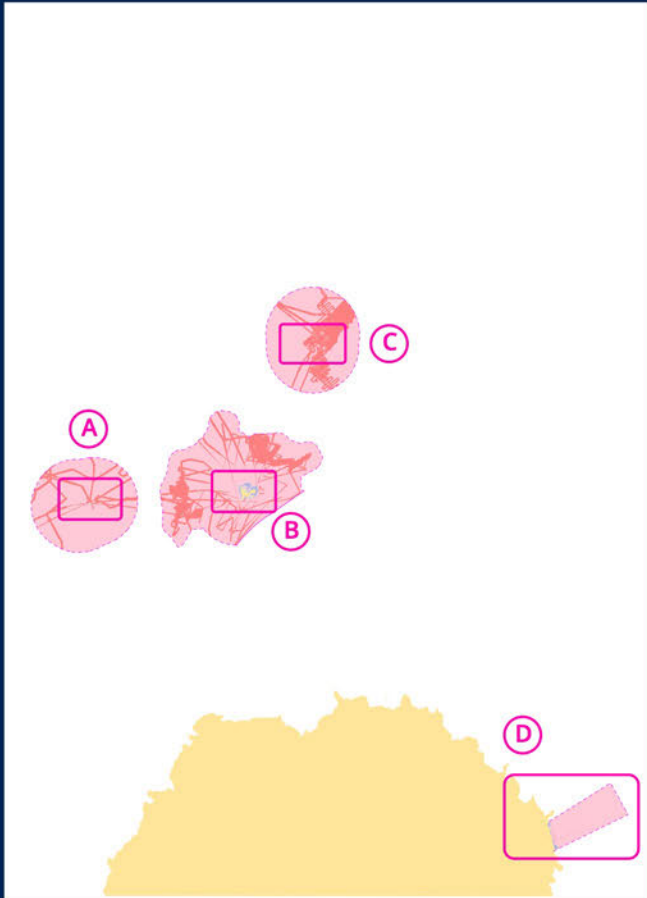


KNOWLEDGE DISTRIBUTION 2020



Austral Islands and Terre-Adélie

Target CATZOC A1/A2		Target CATZOC B		Target CATZOC C	
not achieved	achieved	not achieved	achieved	not achieved	achieved



PRINCIPLE PROGRAMME



Depending on the needs of the TAAF (French Antarctic and Austral Territories) and subject to an agreement and the provision of nautical resources by the TAAF

30-60 days

KNOWLEDGE TARGET

Distribution of knowledge target by quality level (%)	Surface (km ²)	CATZOC A1 / A2	CATZOC B	CATZOC C
EEZ and legal extension of the continental shelf	2 297 000	0,001 %	0,7 %	99,3 %

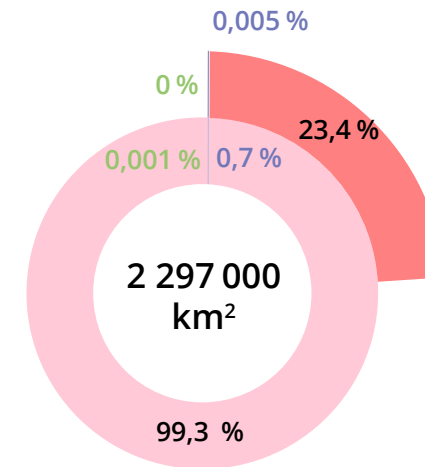
KNOWLEDGE STATUS

Distribution of the area by quality level (%)	CATZOC A1 / A2	CATZOC B	CATZOC C
Knowledge status in 2017	0 %	0,005 %	23,3 %
Knowledge status in 2020	0 %	0,005 %	23,4 %
Knowledge status in 2024 (forecasts)	0 %	0,007 %	23,5 %

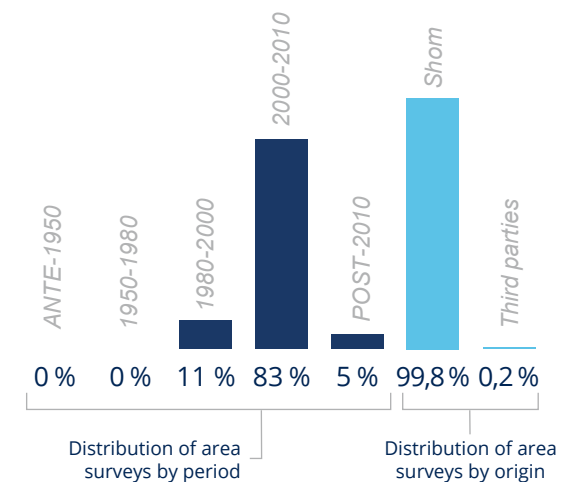
Some highlights for the region

- No survey carried out by Shom between 2017 and 2020.
- 99.8% of the target reached relate to surveys conducted by Shom.
- There are no surveys categorised as CATZOC A1 or A2 in the area.
- In 2010, Shom conducted a 22-day survey off the Crozon Archipelago onboard M/O Marion-Dufresne.

2020 TARGET CHART

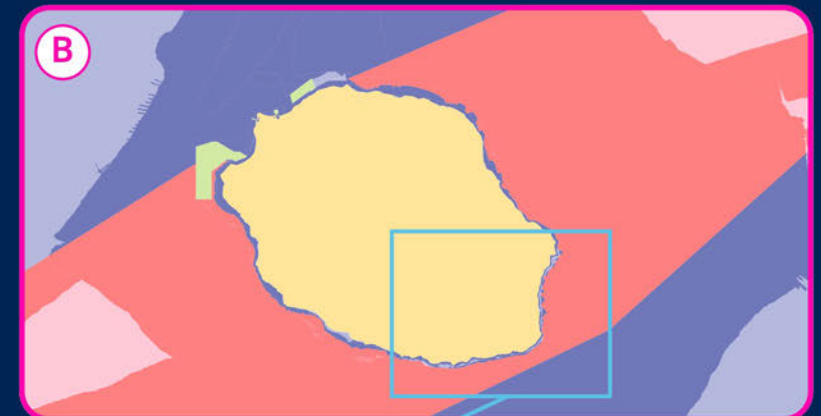
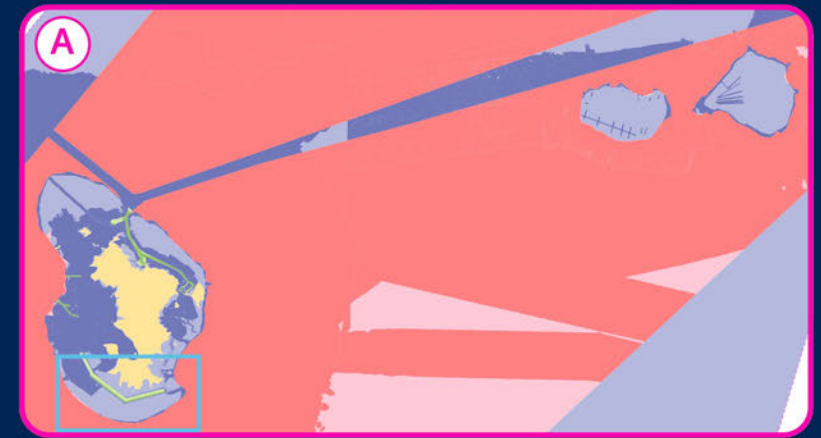
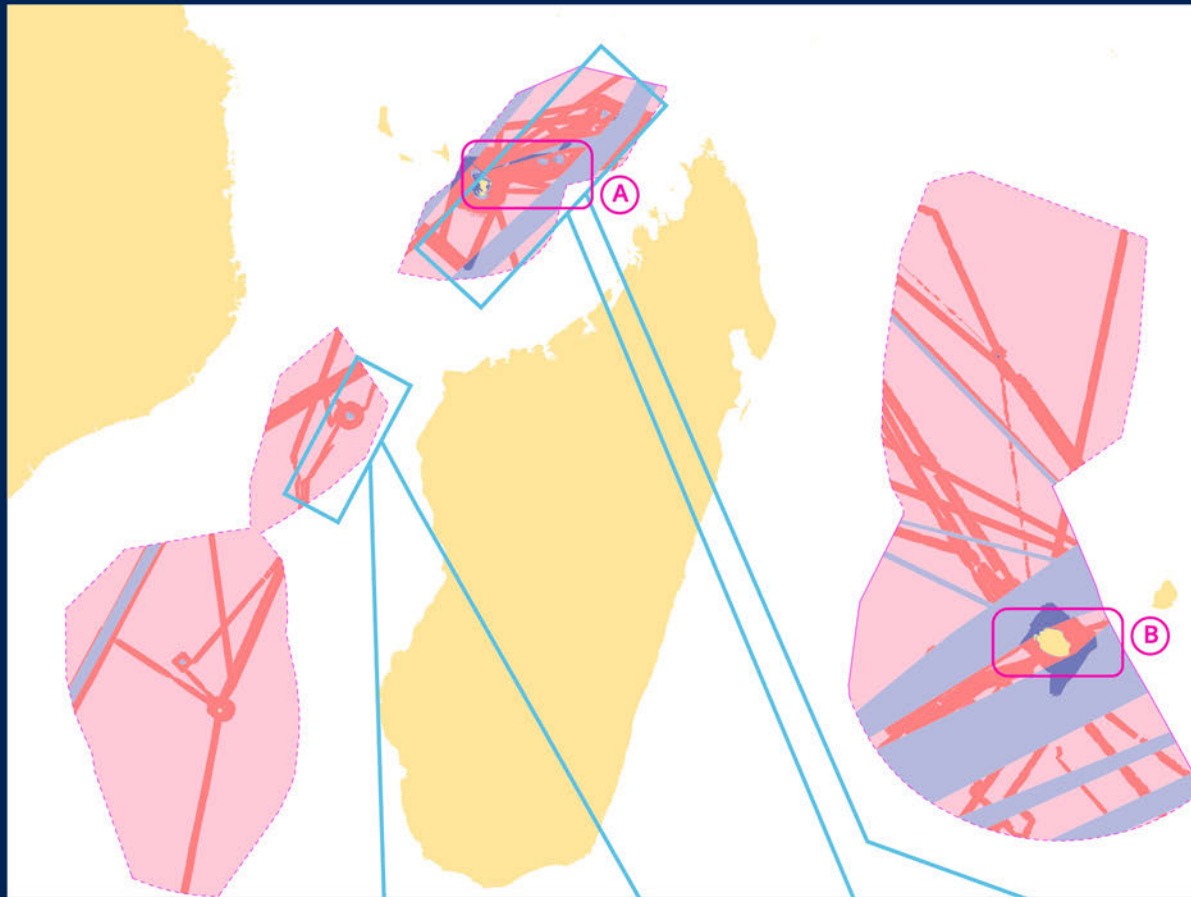


KNOWLEDGE DISTRIBUTION 2020



Overseas Indian Ocean

Target CATZOC A1/A2 Target CATZOC B Target CATZOC C
 not achieved achieved not achieved achieved not achieved achieved



PRINCIPLE PROGRAMME



Surveys in and around the islands of the Mozambique Channel

1 500 km² Collected in 2019 and being processed **15 days**

Surveys in Mayotte and neighbouring maritime areas

14 000 km² Collected in 2019 and being processed **20 days**

Surveys of unknown areas around Reunion Island

15 days

KNOWLEDGE TARGET

Distribution of knowledge target by quality level (%)	Surface (km ²)	CATZOC A1 / A2	CATZOC B	CATZOC C
EEZ and legal extension of the continental shelf	1 024 000	0,01 %	19,4 %	80,6 %

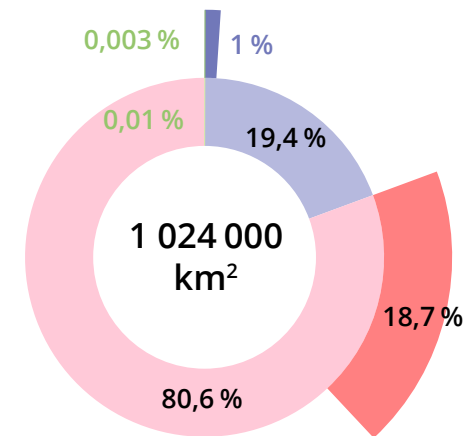
KNOWLEDGE STATUS

Distribution of the area by quality level (%)	CATZOC A1 / A2	CATZOC B	CATZOC C
Knowledge status in 2017	0,003 %	1 %	17,7 %
Knowledge status in 2020	0,003 %	1 %	18,7 %
Knowledge status in 2024 (forecasts)	0,004 %	1,1 %	19 %

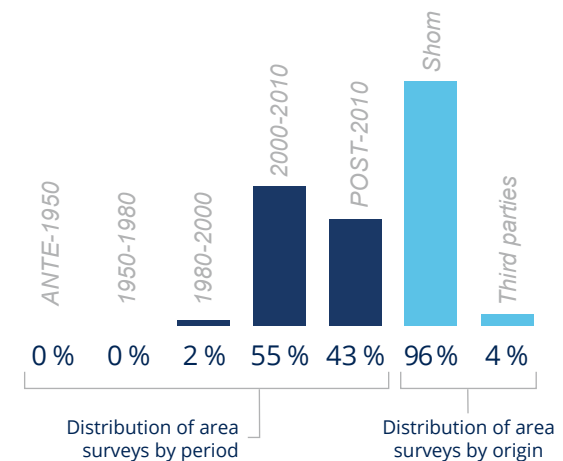
Some highlights for the region

- days of surveys carried out by Shom between 2017 and 2020.
- 96% of the targets reached relate to surveys carried out by the Shom.
- 97% of the targets reached relate to surveys carried out after 2000.

2020 TARGET CHART



KNOWLEDGE DISTRIBUTION 2020



Cartographic responsibility areas



PRINCIPLE PROGRAMME



Surveys along the West African coast to allow safe access for naval vessels

100 days

Surveys in the Gulf of Guinea to provide safe access for naval vessels

170 days

Surveys in Djibouti under the administrative arrangement and in support of French forces

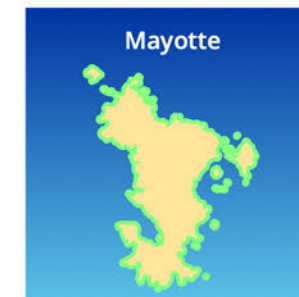
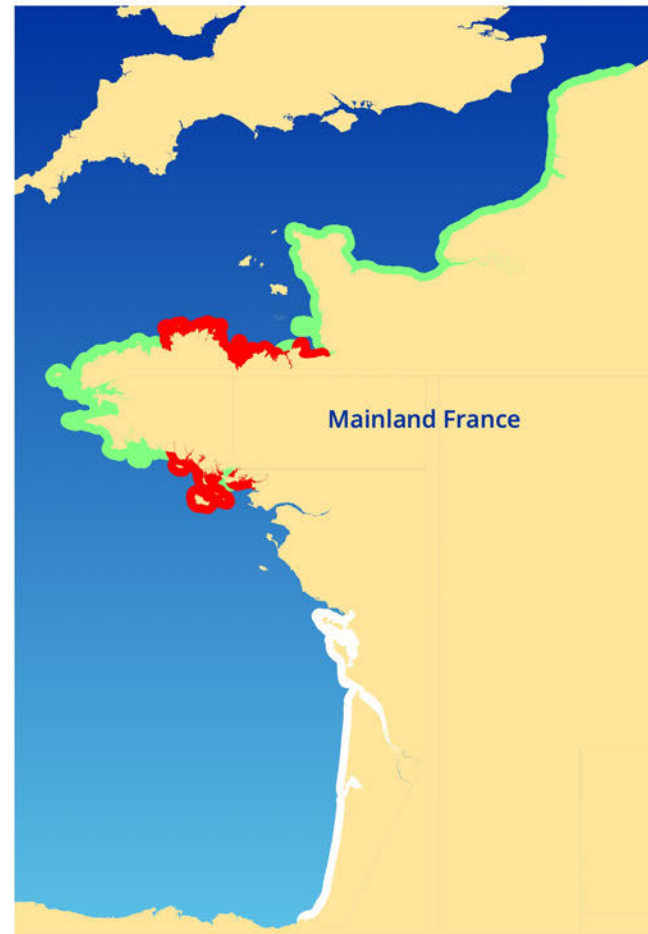
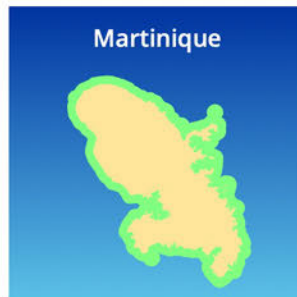
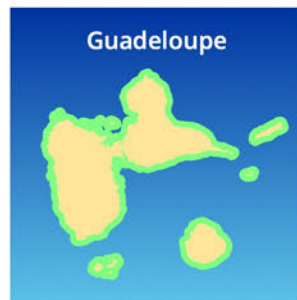
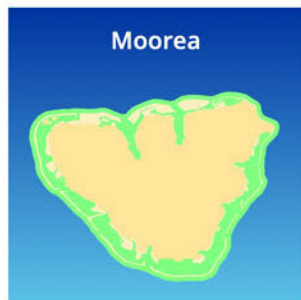
30 days

Topo-bathymetric lidar surveys

As part of its missions, Shom carries out topo-bathymetric acquisitions using airborne lidar. These data contribute to the creation of the geographical referential for the shore (RGL), via the national Litto3D® programme, in collaboration with IGN, the European Union, the French State and partners from the regions.

Shom also provides project management assistance for this type of acquisition in other areas. All these data meet the needs of public maritime and coastal policies but also contribute to improving knowledge within the framework of the PNH (mainly CATZOC B).

The maps on this board show the topo-bathymetric lidar surveys carried out to date by Shom or in progress.



Collected, processed
and delivered
Collected,
processing in progress

Collection in progress

Planned

An underwater photograph with a deep blue color palette. A diver's silhouette is visible in the lower-left corner, reaching upwards. The water is filled with bubbles and light rays. A large, semi-transparent blue graphic element, consisting of two curved lines forming a wide, shallow 'C' shape, is centered on the page. The word 'Annex' is written in white, bold, sans-serif font across the middle of the image.

Annex



L'océan en référence

Postal mail

13, rue du Chatellier - CS 92803
29 228 BREST Cedex 2

Information

+33 (0) 2 56 312 312

National Hydrography Programme

+33 (0) 2 56 312 197
hydro.plans@shom.fr

Internet

data.shom.fr
diffusion.shom.fr

Shom is ISO 9001 certified for all its activities.