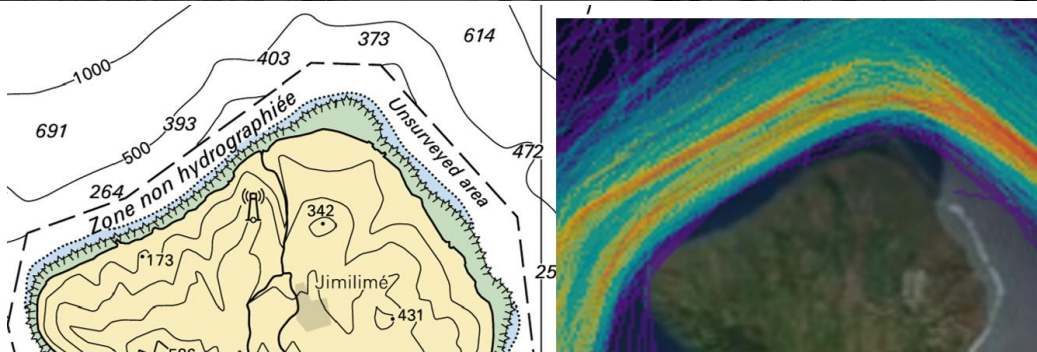
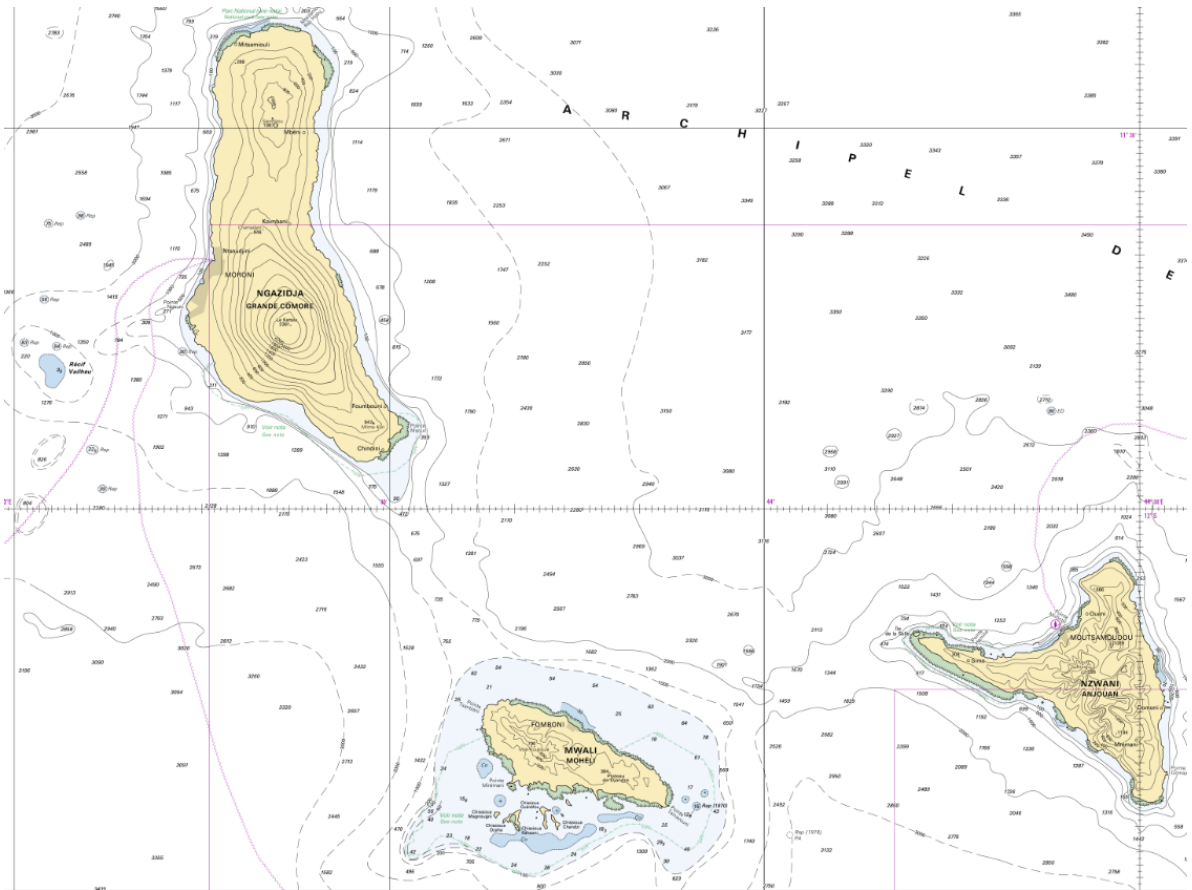




IHO - Capacity Building  
Work Programme  
**TECHNICAL VISIT  
TO COMOROS**  
REPORT  
17 - 22 October 2022





Comoros

Our thanks to .../...



**Ministère des Transports Maritimes et Aériens  
[MTMA]**



**Garde-Côtes Comorienne [GCC]  
Armée Nationale de Développement [AND]**



**Agence Nationale des Affaires Maritimes  
[ANAM]**

**Société Comorienne des Ports  
[SCP]**



**Cellule Cartographie de la Direction de  
l'Aménagement du Territoire de  
l'Urbanisme et de l'Habitat  
[MATUAFTT /DATUH]**



**UNIVERSITE  
des Comores**

**Centre Universitaire de Patsy [UDC/CUP]  
Ministère de l'Éducation Nationale, de  
l'Enseignement, de la Recherche  
Scientifique, de la Formation et de  
l'Insertion Professionnelle**

Avec le concours de :



**Service hydrographique  
et océanographique de  
la marine (France)**



**Southern African and Islands Hydrographic  
Commission (SAIHC)  
Commission Hydrographique de l'Afrique et des Iles  
Australes (CHAIA)  
Capacity Building coordinator (United Kingdom)**



**Secrétariat de l'OHI  
(Monaco)**

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## ABSTRACT

The development of the Union of the Comoros in terms of hydrography and nautical cartography must be reset:

- firstly, by remobilizing and supporting the two main bodies responsible for navigation safety and the maritime economy: ANAM (National Agency for Maritime Affairs) and SCP (Comorian Ports Company);
- through an all-encompassing approach integrating, in addition to hydrography: physical oceanography, integrated management of coastal zones, nautical cartography, fishing, State Action at Sea;
- by mobilizing new actors other than those in the maritime transport chain (environment, defense, research and university education) with very related interests who can only play win/win by cooperating together on shared projects with pooled resources and skills;
- provided that all the institutional and operational actors can meet at least in a national coordination committee, allowing to efficiently share issues, projects, human and material resources and finally results for socio-economic purposes.

This report does not claim to be exhaustive, there are certainly potentialities which have not been inventoried and which should have been considered, it nevertheless offers some recommendations which are based on successful experiences elsewhere in Europe and Africa.

Concerning maritime navigation, with regard to ratified international conventions, in particular SOLAS (providing hydrographic services in order to establish and disseminate the information and nautical documentation necessary for the safety of navigation in its waters), the capacities of the Union of the Comoros are in terms of development:

- **not very active for phase 1:** collection and transmission of maritime safety information/nautical information (MSI) to NAVAREA VII. The transmission of corrections to nautical publications, in particular nautical charts to Shom, is however ensured by ANAM;
- **not acquired for phase 2: hydro-oceanographic surveys** through the acquisition and archiving of data. **Above all, it is necessary to be able to verify or correctly describe the depths of the port areas;**
- **not acquired for phase 3,** namely the production of official nautical charts (but co-published by Shom).

Please note that compared to the last IHO report of 2011, the Union of the Comoros has complied with the SOLAS convention (cartography) by signing a cooperation agreement (Administrative Arrangement) with France. Many structuring texts have also been promulgated, particularly concerning ANAM and the SCP. Progress has been made that could augur new developments worth defending and funding.

This report includes a set of findings and proposals for action. To make it more accessible, it can be broken down to be the subject of targeted actions. The National Coordination Committee to be set up will be able to distribute and plan the tasks between its various stakeholders.



## MAIN COMMENTS, RECOMMENDATIONS

The majority of the recommendations are to be followed within the National Coordination Committee and therefore to be included on the agenda of the first meetings.

Object	Comments – Recommendations
	<b>Phases 1,2,3 of development</b>
<b>Phase 1 development</b> <b>Maritime Safety</b> <b>Information (MSI)</b>	<ul style="list-style-type: none"> <li>• Clearly identify all the players in the maritime world who can provide nautical information and benefit from it: Comorian Coast Guard (GCC), ANAM, SCP including new secondary ports, fishing</li> <li>• In order to consolidate the current execution, in accordance with the international regulations (IMO-IHO) and the national texts, specify by an interministerial instruction the methods of the collection and the diffusion (urgent, fast, delayed) of the information nautical (MSI: Maritime Safety Information)</li> <li>• The main ports (Moroni, Mutsamundu) and the secondary ports must be responsible for issuing local AVURNAVS</li> <li>• Note: these recommendations can complement those that IALA/AISM has been able to express for its part on aids to navigation during evaluation missions.</li> </ul>
<b>Phase 2 development</b> <b>Hydro-oceanographic</b> <b>surveys from data</b> <b>acquisition to archiving</b>	<ul style="list-style-type: none"> <li>• Identify all national needs (with socio-economic issues) in terms of surveys (Ports, GCC, Coastal Environment, etc.) and prioritize them</li> <li>• Identify all the possibilities of pooling equipment resources (ships/boats) (GPS, echo sounders, tide gauges) and human resources (geomaticians, hydrographers, oceanographers, cartographers, computer scientists, logisticians, managers). It will be necessary:               <ul style="list-style-type: none"> <li>○ To equip with a portable system (inter-island use) for port bathymetry (shallow-water single-beam sounder)</li> <li>○ to train a hydrographer for the acquisition of hydro-oceanographic data: that of a certified IHO category B hydrographer is strongly recommended</li> </ul> </li> <li>• Concerning the floating means (boats) the Comoros are not deprived of them with those of the SCP and the GCC</li> </ul>
<b>Phase 3 development</b> <b>Cartographic production</b>	<ul style="list-style-type: none"> <li>• The co-production of nautical charts with the Shom must continue within the framework of the Administrative Arrangement (2019)</li> </ul>

	<ul style="list-style-type: none"> <li>• It is nevertheless logical and necessary that the Comoros can gradually gain autonomy and already respond independently to specific cartographic needs such as sovereignty maps of State Action at Sea or those of marine protected areas</li> <li>• It is therefore necessary to clearly identify the already existing capacities (e.g. Cartography Unit of the Department of Territorial Development, Urban Planning and Housing: CC/DATUH) in terms of geomatics in order to pool them through joint projects</li> <li>• Constitute a national database in charge of collecting, qualifying, making available hydrographic and oceanographic data (depths, tides, nature of the bottom, topography of the coast, landmarks, beaconing, etc.). This database must be initialized with existing data (including historical data from Shom)</li> <li>• Designate one or more national referents by type of data</li> <li>• Produce a first support map for maritime public policies: meet the needs of State Action at Sea (institutional limits, EEZ, continental shelf extension, fishing zones, marine protected areas, etc.)</li> <li>• Training of new expert agents in nautical cartography: that of marine cartographer certified OHI category B will be worth following once the development of phase 2 (hydrographic surveys) has been completed.</li> </ul>
	<b>International relations: IHO, Regional/SAIHC, France</b>
<b>Involvement in the Regional Hydrographic Commission (SAIHC)</b>	<ul style="list-style-type: none"> <li>• Participate in the next SAIHC (19th) plenary of 2023: <a href="https://iho.int/en/southern-african-and-islands-hc">https://iho.int/en/southern-african-and-islands-hc</a></li> <li>• In particular, participate in the seminar which will precede at the same place and which will focus on “Raising Hydrographic Awareness (for SAIHC Associate and Non-Members)”</li> <li>• Contact point: <a href="mailto:lucy.fieldhouse@ukho.gov.uk">lucy.fieldhouse@ukho.gov.uk</a></li> </ul>
<b>Administrative Arrangement (AA) with France</b>	<ul style="list-style-type: none"> <li>• This arrangement dates from 2019 and allows Comoros to be in compliance with SOLAS.</li> <li>• The work of the National Coordination Committee may lead to adjusting the obligations of the parties currently limited to Shom for France and ANAM for the Comoros. AA which may evolve to promote the gradual autonomy of the Comoros.</li> <li>• Beyond the topics of cooperation already indicated, it will be appropriate to address the subject of databases, the importance of which was mentioned during the Technical Visit.</li> </ul>
<b>Surveys - results:</b> Updating nautical charts	<ul style="list-style-type: none"> <li>• It is essential to provide Shom with all available data (port surveys, new infrastructures, etc.) accompanied by quality files (metadata on the means used during the survey)</li> </ul>



	<ul style="list-style-type: none"> <li>• Contact all operators who have survey data and send them to Shom with the metadata (archive, in parallel, this data in the Comoros)</li> <li>• It should be noted that without the explicit authorization of the owners of the data, their use by the Shom is restricted to updating nautical charts. They are neither disseminated nor used in other products without the express written consent of the owners.</li> </ul>
	<b>Comoros</b>
Creation of one or more national <b>databases</b>	It is essential that the Comoros archive all the data mentioned above in a permanent way for free and shared valuations
<b>General Secretariat of the Government (SGG)</b>	<p>Develop a national framework: the National Coordination Committee (Aids to Navigation, Hydrography, Physical Oceanography, Marine Cartography) [Name and acronym to be defined]</p> <p>This committee would make it possible to efficiently share issues, projects, human and material resources and finally results. The following institutional and/or operational actors will be particularly involved: ANAM, SCP, GCC, CC/DATUH, environment, fishing, University when training and research are put in place for the sea and the coast (marine geosciences) ...</p> <p>The SGG, attached to the presidency, given its inter-ministerial powers, could promote its constitutive text.</p>
<b>Comorian Coast Guard (GCC)</b>	<ul style="list-style-type: none"> <li>• The GCC has nautical skills and intervention capabilities at sea. It will be one of the first beneficiaries of the development of hydrography</li> <li>• Make available, according to rules to be defined, its nautical means of intervention at sea to survey</li> <li>• Specify its needs in terms of nautical documentation and AEM</li> </ul>
<b>ANAM SCP</b>	<p>It is obvious that these two bodies are most concerned with the development of hydrography and nautical cartography. The sharing of responsibilities in this area can be done according to texts which position ANAM as a “regulatory” body (e.g. texts of a state nature) and the SCP as an operational entity (e.g. implementation of a port hydrographic system). Now, when it comes to developing national capacities (therefore going beyond port limits), it is possible that the current perimeters of these entities will have to be adapted (or even others such as those of the CC/DATUH or the GCC) for an all-encompassing approach to efficiently satisfy: hydrography, aids to navigation, nautical cartography, oceanography, coastal management, etc.</p> <p>We will especially remember that it will be necessary:</p>

	<ul style="list-style-type: none"> <li>• Have functional hydrographic equipment to comply with IHO specifications capable of updating official nautical charts</li> <li>• In terms of forward-looking management of skills and staff, have an agent to follow the training of technician (Bachelor 3) in hydrography from the Shom school (scientific/computer profile). More effective solution in the long term than following short courses</li> </ul>
	<b>Formation</b>
<b>Basic training (CAT B) for technicians in hydrography or cartography</b>	Training in hydrography (data acquisition) remains fundamental and a priority (before that in cartography). A request for training in this direction should be relaunched with the Shom while again approaching the French Embassy (defense mission) in order to include this request in the cooperation plan. Shom does not have a dedicated budget for international cooperation and therefore cannot finance the training requested. For these to be possible, funding must be sought either via French cooperation funds (French Embassy) or through Comorian or external funding.

### **Maritime Safety Information: NAVAREA VII**

*The South African Navy Hydrographic Office (SANHO), Coordinator of NAVAREA VII, in conjunction with the South African Meteorological Service, promulgates and disseminates shipping safety messages and weather information. Cape Town Radio, via Telkom Radio services, is the GMDSS service provider and as such, transmits all MSI on behalf of the Coordinator*

Southern Africa – Indian Ocean (IOR):

10° 30'S, 055° 00'E (Mozambique international border with Tanzania, (East Coast) to

30° 00'S, 055° 00'E to

30° 00'S, 080° 00'E to the coast of Antarctica.

Operational Point of Contact for the National Coordinator within NAVAREA VII is:

<b>Country</b>	<b>Institution</b>	<b>Telephone</b>	<b>Facsimile</b>	<b>Email</b>
South Africa	South African Navy Hydrographic Office	+27 21 787 2445 +27 21 787 2408	+27 21 787 2233	hydrosan@iafrica.com

Port Control Vessel Traffic Services in South African hub ports provide information necessary for safe navigation within VTS routes and port approaches. However, a concerted effort is to be made to promote the dissemination of local warnings regarding hazards inside of the fairway buoy of any harbours by local port authorities within NAVAREA VII for safe navigation within VTS routes and port approaches. This would reduce the requirement to disseminate this information via Voice or NAVTEX or SafetyNET broadcasts via Cape Town Radio. SafetyNET coverage is available through the NAVAREA VII Coordinator for Angola, Namibia, Mozambique and Madagascar.

### **Non-urgent nautical information :**

Hydrographic surveys, port plans: [bri@shom.fr](mailto:bri@shom.fr) / copie : [na-om@shom.fr](mailto:na-om@shom.fr) et [dmi-rex-d@shom.fr](mailto:dmi-rex-d@shom.fr)

#### **Adresse postale :**

Département « Informations et Ouvrages Nautiques »  
Service hydrographique et océanographique de la marine (Shom)  
CS 92803 - 29228 BREST CEDEX 2  
FRANCE

## INTRODUCTION

### 1 Preparation of the technical visit - Background

The visit was planned as part of the IHO Capacity Building Program for the year 2022

- *CBWP 2022: action A-08 - «Technical Visit to Comoros».*

It was initiated in close collaboration with M Mahachi AHMED head of the Maritime Safety and Security Department of the National Agency for Maritime Affairs (ANAM).

The terms of reference of the visit are recalled in Annex B.

### 2 Composition of the team

The visiting team consisted of:

<u>Name</u>	<u>Role</u>
Henri DOLOU	Project manager at Shom for African affairs (France on behalf of the IHO)

Were closely associated (participation in all visits):

- M Mahachi AHMED: head of the Maritime Safety and Security Department at ANAM. (Main Point for « IHO »);
- M Ahamada Moissi YOUSOUF : Head of the Maritime Navigation Service at ANAM

The involvement, in particular through his participation in high-level meetings (Government General Secretary, Ministry of Transport), of Mr Saïd SALIM, Director General of ANAM, was decisive.

## PART A - OVERALL ASSESSMENT OF THE SITUATION IN REGION

### 3 Efficacy of the Technical Visit

The follow-up of actions resulting from written recommendations will make it possible to measure the real effectiveness of the visit in the long term. However:

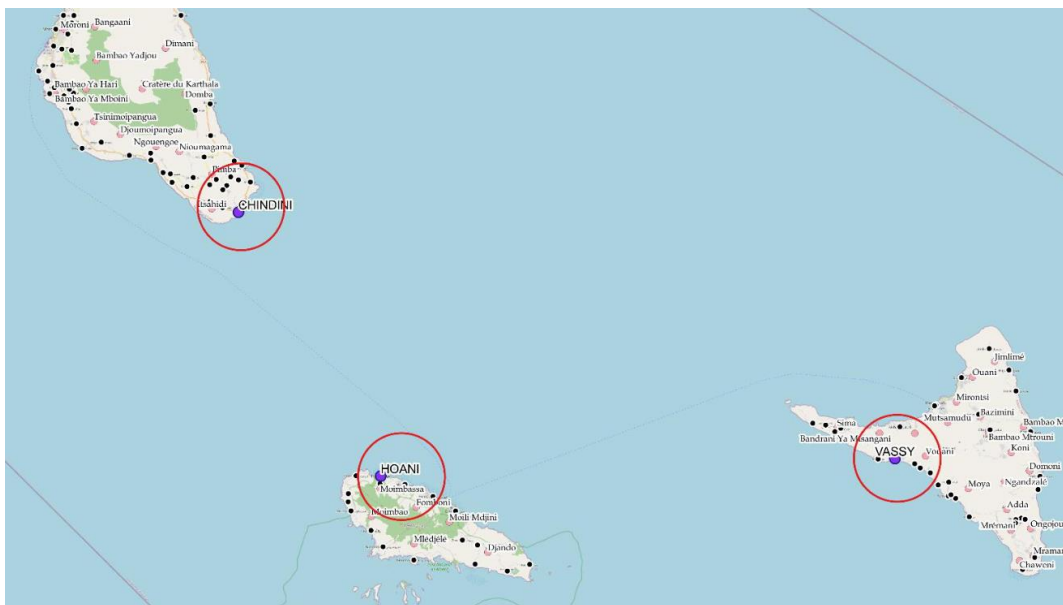
- That it could have been prepared prior to the trip through exchanges and analyzes of existing reports and texts;
- That the issues of hydrography, oceanography and cartography have been addressed in terms of maritime navigation, the environment, research and training;
- The following meetings (Grande Comore/Moroni or Anjouan/Patsi and Mutsamudu) were held (chronological order – annex E specifies the main authorities met):
  1. ANAM (National Agency for Maritime Affairs);
  2. SGG (General Secretariat of the Government – Presidency of the Union of the Comoros);
  3. Cartography Unit (GIS) of the DATUH (Department of Territorial Development, Urban Planning and Housing);
  4. MTMA (Ministry of Maritime and Air Transport);
  5. GCC (Comorian Coast Guard);
  6. SCP (Comorian Ports Company) on Anjouan (Visit to the port of Mutsamudu);
  7. CUP (Patsy University Center) on Anjouan for a conference on hydrography, oceanography and nautical cartography;
  8. ANAM, SCP (including port pilot), GCC, Regional Directorate for the Environment in Anjouan;
  9. SCP (including port pilot) on Grande Comore (Visit to the port of Moroni);
  10. PICMC (Comoros Inter-Island Connectivity Project);
  11. additional visit to the Minister (MTMA).
- That a restitution meeting (conclusions – recommendations) at the end of the visit was held at the SGG (chaired by the Secretary General) with the following stakeholders: ANAM, SCP, GCC, Directorate General of Fishery Resources;
- That the actors able to collect nautical information were again made aware of the SOLAS obligations ensured by the Comoros in connection with South Africa (NAVAREA VII) and France (co-producer of the nautical documentation in force in the waters under the jurisdiction of the Comoros).

Reusable communication media have been provided bearing:

- On issues and governance (institutional context);
- On hydro-oceanography-marine cartography (challenges and professions);
- On the current description, in the Comoros, of the development (according to IHO standards) of hydrography and nautical cartography;
- Finally, on the main lessons learned immediately at the end of the Technical Visit.

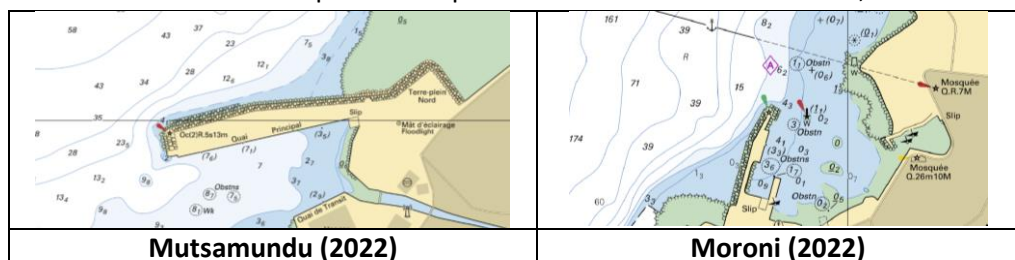
The discussions were professional and constructive. Recommendations have been made. Some of them, shared during the summary meeting can be conducted in the short term such as (PRIMORDIAL):

- In accordance with international regulations (IMO-IHO) and national texts, specify by an interministerial instruction the methods of collection and dissemination (urgent, rapid, deferred) of nautical information (MSI: Maritime Safety Information) for all waters under Comorian sovereignty. It is essential a question of validating and verifying the complementarity of actions that can be carried out by the main actors at sea, namely the SCP and the GCC (regulation by the ANAM);
- Inform Shom of the creation of new ports (Hoani, Vassy, Chindini) within the framework of the Comoros Inter-Island Connectivity Project (PICMC). Provide, when the time comes, plans of the ports (topography) and depths respecting international standards. Take advantage of these exchanges to gain skills



### New harbours of PICMC

- Develop a national coordination body for Hydrography, Physical Oceanography, Marine Cartography and Aids to Navigation that is multidisciplinary and inter-ministerial;
- Continue to participate in meetings, works and seminars of SAIHC (Southern African and Islands Hydrographic Commission of the IHO);
- Mobilize to master the processes of data acquisition (hydro-oceanographic), their qualification, storage, sharing, dissemination, etc. It is advisable to quickly equip the country with a portable integrated hydrography system (Bathymetry) in shallow waters to:
  - raise doubts about the depths of the ports of Moroni and Mutsamundu;



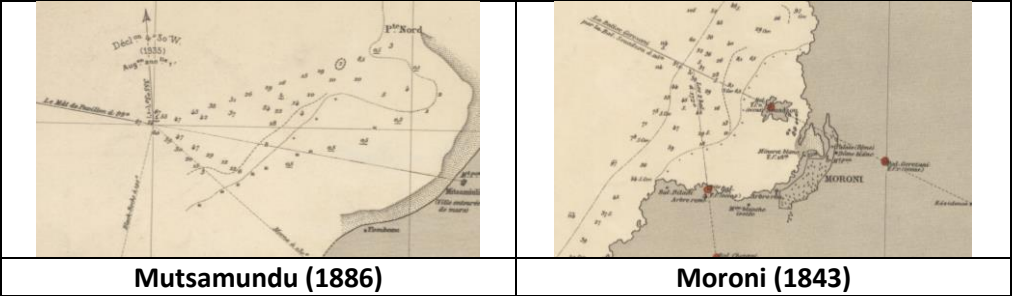
- specify the depths of the new ports of the PICMC project (Hoani, Vassy, Chindini);
- Describe new protected areas.

It should be noted that the technical exchanges focused on the obligations of the SOLAS convention (chapter V) as well as on the expected socio-economic benefits. As such, hydrographic investments can generate very substantial and very rapid financial savings, in particular via:

- minimization of dredging operations;
- optimization of ship loading;
- the reception of new vessels with greater capacities but with much more demanding dimensions in terms of navigation constraints.

They also focused on the expected benefits in terms of the marine environment, particularly at the land-sea interface (coastal development – coastal protection).

For memory:



**4 International and regional cooperation – Defense**

a. [International and Regional Organizations]


OHI/IHO Status	Regional Hydrographic Commission	OMI/IMO	AISM/IALA
Non Member	Associated member CHAIA/SAIHC	Member	Non Member

b. [Defence and security arrangements]: Topic not covered during the visit.



## PARTIE B – COMOROS – ASSESSMENT

### 5 Involvement in the Regional Hydrographic Commission (SAIHC)

	<p>Southern African and Islands Hydrographic Commission (SAIHC) Commission hydrographique de l’Afrique et des îles australes (CHAIA)</p>
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Constats	Actions
<p>As an associate member, Comoros (then represented by the SOCIETE COMORIENNE DES PORTS) participated in the last commission in May 2022. Its last online national report (IHO) nevertheless dates back only to 2021</p>	<ul style="list-style-type: none"> <li>• Participate in the next commission of 2023 (SAIHC19)</li> <li>• <a href="https://iho.int/en/southern-african-and-islands-hc">https://iho.int/en/southern-african-and-islands-hc</a></li> </ul>
	<ul style="list-style-type: none"> <li>• In particular, participate in the “Raising Hydrographic Awareness (for SAIHC Associate and Non-Members)” seminar which will precede SAIHC19.</li> <li>• Seminar planned at the CBWP in 2023 (action P-07)</li> <li>• Point of contact: <a href="mailto:lucy.fieldhouse@ukho.gov.uk">lucy.fieldhouse@ukho.gov.uk</a></li> </ul>

### 6 Preliminary liaison

The visit was mainly prepared through discussions with ANAM and the collection of open information on the Internet.

Shom was consulted as co-editor (with Comoros) of nautical charts and nautical publications (permanent role).

Shom provided copies (GeoTiff and paper on site) of the nautical charts listed in Appendix H.

### 7 Technical Visit contact Points – IHO Focal Points (P5-Yearbook)

The Technical Visit contact points are listed in Appendix D.

Concerning the IHO publication P5 an update is necessary: it is provided in annex G.

Current IHO Yearbook reference (page 274):

[https://iho.int/uploads/user/pubs/periodical/P5YEARBOOK\\_ANNUAIRE.pdf](https://iho.int/uploads/user/pubs/periodical/P5YEARBOOK_ANNUAIRE.pdf)

The appointment of state and technical officials to the new national coordination committee (Hydrography, Physical Oceanography, Cartography, aids to navigation) will be likely to eventually review these representations.

## DESCRIPTION OF MARITIME ACTIVITIES

### 8 National Maritime Affairs - Actors

The duration of the visit (6 working days) made it possible to meet important players in the maritime transport chain.

The talks focused on the issues associated with hydrography: beyond safety of navigation (international commitments – SOLAS), socio-economic performance through port capacities for receiving ships (including larger ones) and the optimization of their loading (through the depths shown on the nautical charts).

It was recalled that hydrography is an applied science dealing with the measurement and description of the physical elements of the seas and coastal areas. That its mastery necessarily intervenes in coastal protection (coastal development) thus underlining the transversal character of hydrography (physical oceanography is part of it) and consequently, at the governmental level, its interministerial ambition.

In terms of capabilities, according to the IHO criteria (The three phases: maritime safety information, surveys, cartography), the levels of development of the IHO are described in the chapter “PROPOSAL FOR COORDINATION AND DEVELOPMENT OF CAPACITIES”

#### 8.1 Main players

<b>8.1.1 Agence Nationale des Affaires Maritimes- National Agency for Maritime Affairs (ANAM)</b>	
---	---



**Reference :** décret N° 16 – 019 / PR du 20 janvier 2016

The National Agency for Maritime Affairs (ANAM) is placed under the technical supervision of the Ministry responsible for transport and the finance supervision the Ministry responsible for finance. It is endowed with management autonomy and invested with a public service mission.

Among its missions is the implementation of State policy in terms of international maritime conventions (regulatory body).

Regarding maritime navigation, among others, it is responsible for:

- traffic organization and traffic rules in archipelagic waters;
- aids to navigation;
- collection and compilation of hydrographic data with a view to dissemination and publication as well as updating of all the nautical information necessary for the safety of navigation, in accordance with the international prescriptions in force;
- determinations of the methods of application of the GMDSS and organization of its operation;
- animations and coordination of administrations and organizations with attributions at sea and on the coast. According to the texts, the managing director of ANAM exercises the functions of Coordinator of the AEM (Action de l’Etat en Mer - State Action at Sea).

The General Management of ANAM includes:

- a Maritime Safety and Security department with the Maritime Navigation Service responsible for:
  - aids to navigation, lighthouses and beacons;
  - maritime radio communications;
  - coastal navigation safety monitoring;
  - the collection and compilation of hydrographic data as well as the updating of all the information necessary for the safety of navigation as already indicated;
- a Legal and International Cooperation department with:
  - a National and International Regulation department responsible in particular for the transposition of international rules and conventions into internal (national) laws;
  - an international cooperation service responsible in particular for monitoring (and investigating) multilateral and bilateral agreements.

**8.1.2 Armée Nationale de Développement - National Development Army (AND) - Garde Côtes Comorienne - Comorian Coast Guard (GCC) (GCC)**



**Reference :** décret N°10-026 / PR du 12 avril 2010

The Comorian Coast Guard (Army) has among its mission’s maritime safety and security. According to the decree in reference (article 2), it supervises and controls all hydrographic and oceanographic activities. [Editor's note: this control activity probably includes, more specifically, activities that may be carried out by third countries].

Still using national texts, this responsibility must be exercised/shared in conjunction with ANAM which, according to Decree No. 16-019 / PR of 20 January 2016 (article 4 – missions) is responsible for: *hydrographic data in the waters of the Union of the Comoros with a view to the dissemination and publication as well as the updating of all the nautical information necessary for the safety of navigation, in accordance with the international prescriptions in force*”.

CCG missions are sovereign and include “AEM” operational activities at sea.

Moreover:

- The CCG can participate in the collection (it has a front row seat to observe) and the dissemination of nautical information;
- The CCG has vessels that are all supports (maritime platforms) for carrying (at least occasionally) portable hydrographic and oceanographic data acquisition systems. The rapid development of phase 2 (data acquisition at sea, surveys) also seems to rely on these existing national resources.

Note: the CCG, as part of joint training with the French Navy (June 2022, *Le Malin*), was able to get involved in the use of its light hydrographic system of the navy (SHLM) and conduct two hydrographic surveys coasts in the Comoros.

<b>8.1.3 Cellule de Cartographie - Cartography Unit (CC) within la direction de l'Aménagement du Territoire, de l'Urbanisme et de l'Habitat - the Department of Territorial Development, Urban Planning and Housing (DATUH)</b>	
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**Reference :** Arrêté N° 22 – 004 /MATUAFTT/CAB du 19 mars 2022

This cell has the following missions:

- Collect, process and analyze georeferenced data;
- Act as a reference centre, holder of a basic national georeferenced database (maritime boundaries, hydrography, etc.) in the absence of a national mapping agency;
- Serve as a forum for exchange and validation for all matters relating to the management of cartographic data between the various national actors;
- Update the various GIS databases;
- Produce maps and plans at different scales to support the central government, local authorities and other partners in the planning and implementation of public policies.

<b>8.1.4 Société Comorienne des Ports - Comorian Ports Company (SCP)</b>	
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**Reference :** décret N° 13 – 4/PR du 14 décembre 2013

The SCP, Public Establishment of an Industrial and Commercial Nature (Établissement Public à Caractère Industriel et Commercial: EPIC) is placed under the technical supervision of the Ministry responsible for maritime transport and under the financial supervision of the Ministry responsible for finance.

A direction of the port is open in each island.

Among its missions:

- Port beacon;
- Maintenance of the depths in the basins and access;
- The establishment of a “hydrographic axis”.

## **8.2 Coordination: AEM (State Action at Sea) and “National Coordination Committee for Aids to Navigation, Hydrography, Oceanography and Marine Cartography”**

### **8.2.1 State Action at Sea (AEM) - Interministerial Committee for the Sea - Maritime Operational Committee**

**Reference :** décret N° 12-128 / PR du 29 mai 2012

State Action at Sea (AEM) brings together, with the exception of military defence, all missions relating to the sea incumbent on the State. Whose:

- safeguarding people and property;
- protection of the marine and coastal environment.

Placed under the President of the Union, it involves the assistance of several administrations including the Ministries responsible for:

- defense;
- maritime transport;
- fishing;
- environment.

The national coordinator for the AEM is the representative of the State at sea:

- It animates and coordinates its action under the control of the Interministerial Committee for the Sea;
- He is assisted by the Maritime Operational Committee;
- It has Operational Centers such as semaphores;
- It benefits from the support of State administrations (Coastguard, port authority, fishing, etc.).

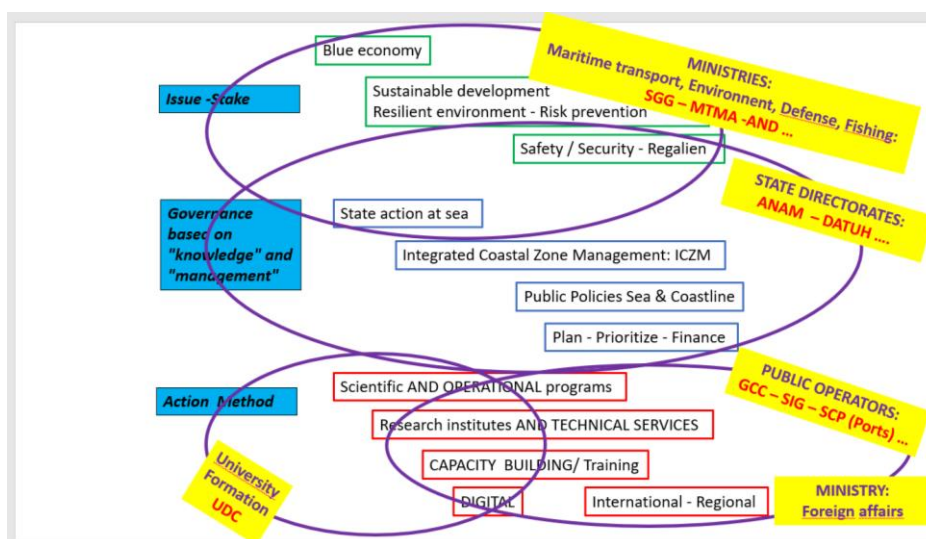
### 8.2.2 National Coordination Committee for Aids to Navigation, Hydrography, Oceanography and Marine Cartography »

See chapter:

COORDINATION AND CAPACITY DEVELOPMENT PROPOSAL

/ National Coordination/Consultation Committee (Hydrography, Physical Oceanography, Marine Cartography, Aids to Navigation)

- Its necessity is recognized: many common needs, shareable skills, resources to be pooled (through agreements, budgetary compensation if necessary);
- Its multidisciplinary (transport/navigation, coastal environment, safety/security, fishing, research and education in oceanography, etc.) and inter-ministerial nature was underlined;
- Note: such a committee does not, however, constitute an operational national body for research, development and hydro-oceano-charting production. Do we need such an operational organization that would require a heavy investment to study and set it up (status, governance, budget, material and human resources, etc.)? Rather than creating such a service ex-nihilo, it may be rather appropriate to already rely on existing structures (ANAM? SCP?). The implementation of structures and operational means is more in line with the “Action/Method” level of the following figure. The subject is obviously to be debated between the actors concerned.

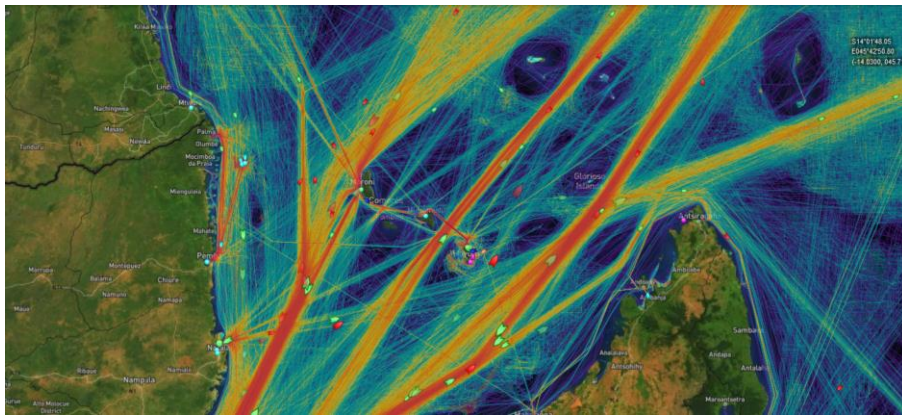




## 9 Maritime Trade and Traffic – Nautical Cartography/CATZOC

### 9.1 Maritime traffic

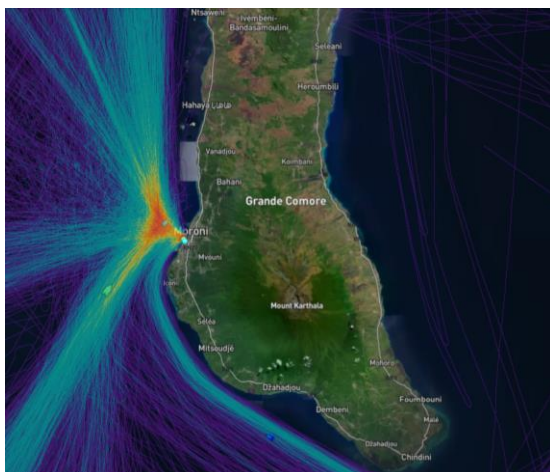
AIS data (source : <https://www.marinetraffic.com> )



General maritime traffic situation north of the Mozambique Channel



General situation of maritime traffic off the Comoros archipelago



Maritime traffic at Moroni  
(Grande Comore)



Maritime traffic at Mutsamudu  
(Anjouan)

## 9.2 Charting/CATZOC

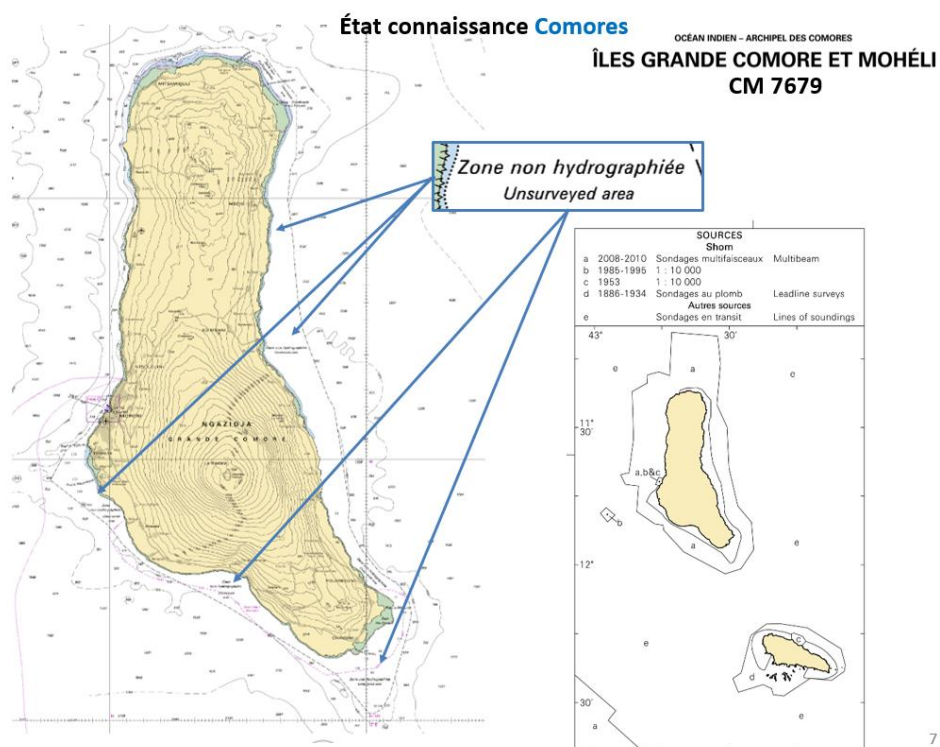
### 9.2.1 Official cartography of the Comoros (see Annex H)

France ensures in fact (pending greater autonomy from the Comoros) the function of "Primary Chart Authority" through the production of nautical documentation made by the Shom on Comorian waters, this cartographic responsibility being defined by an administrative arrangement between France and the Comoros signed in 2019.

Comorian waters are covered by a consistent set of paper charts, digital rasters in GeoTiff format and Electronic Navigational Charts (ENC). These products cover the most important known navigation needs.

The quality of these charts can be assessed by the knowledge described in the following chapter. Concerning maritime navigation (access to ports, waiting and anchorage areas, quays) it depends fundamentally on regular bathymetric updates. Updates that are insufficient (see notes on the development of phase 2 concerning hydrographic surveys).

### 9.2.2 State of knowledge for islands

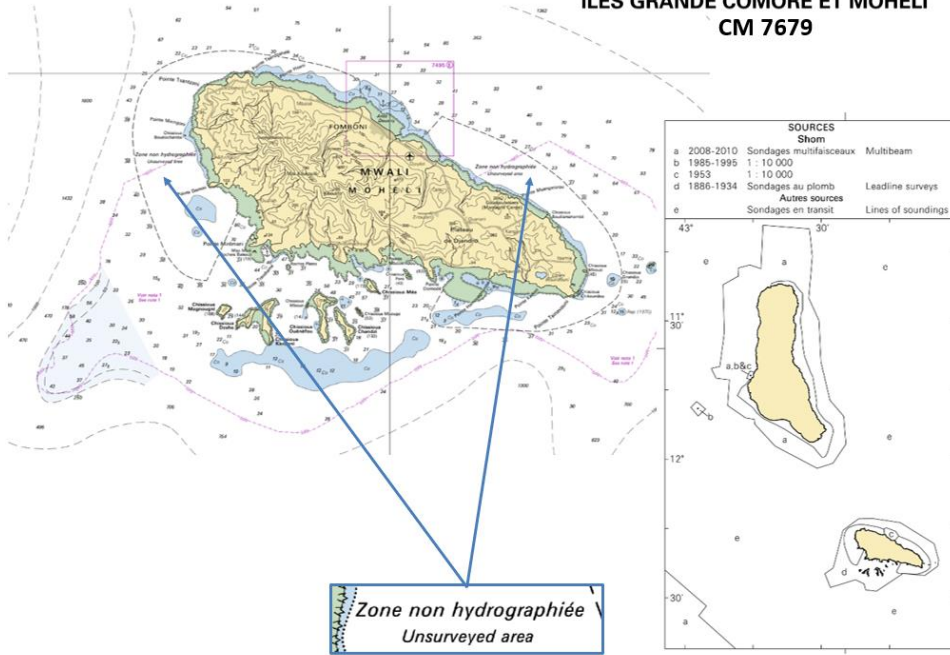




État connaissance Comores

Océan Indien - Archipel des Comores

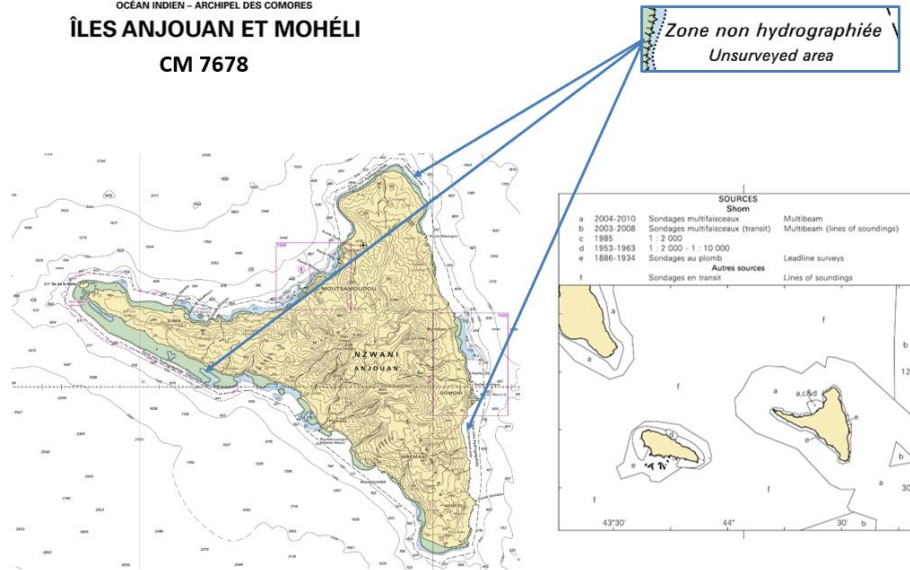
ÎLES GRANDE COMORE ET MOHÉLI  
CM 7679



État connaissance Comores

Océan Indien - Archipel des Comores

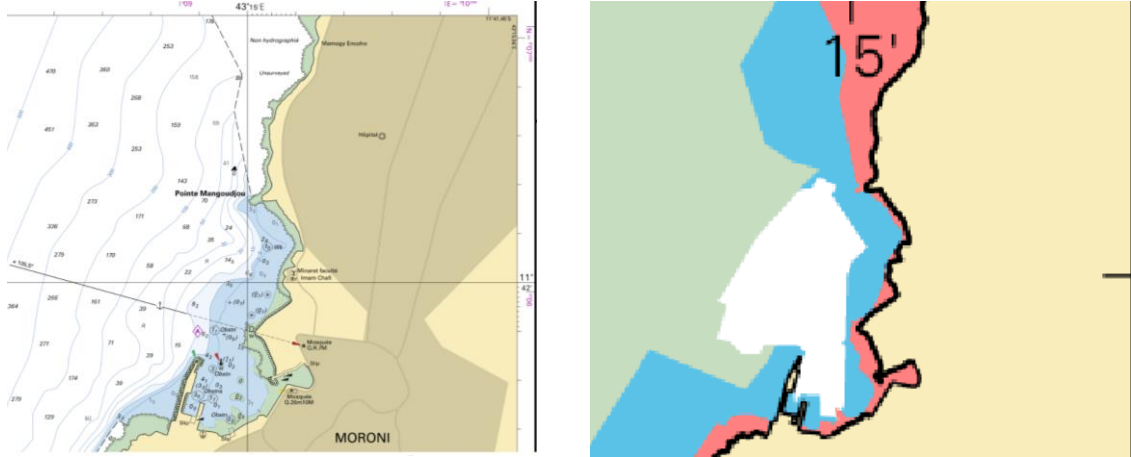
ÎLES ANJOUAN ET MOHÉLI  
CM 7678



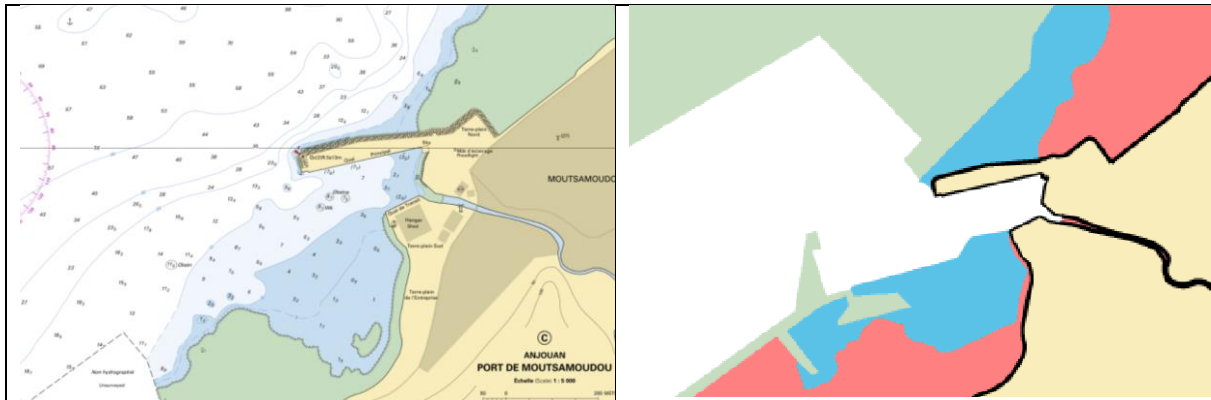
## State of knowledge for the anchorages of Moroni and the Port of Mutsamudu

Exploration totale du fond (CATZOC A1 et A2)	Full sea floor coverage (CATZOC A1 and A2)
Exploration partielle du fond. Des éléments non cartographiés, dangereux pour la navigation de surface sont peu probables, mais peuvent exister (CATZOC B).	Partial sea floor coverage. Uncharted features hazardous to surface navigation are not expected, but may exist (CATZOC B).
Exploration partielle du fond. Des anomalies de profondeurs peuvent exister (CATZOC C).	Partial sea floor coverage. Depth anomalies may be expected (CATZOC C).
Des anomalies importantes de profondeur peuvent exister. Le marin doit être très prudent en naviguant dans ces zones (CATZOC D et U ou zone non hydrographiée).	Large depth anomalies may be expected. Great care should therefore be exercised when navigating in these waters (CATZOC D and U or non surveyed area).
Voir Guide du Navigateur.	See French mariners' handbook.

Carte 7495 – Mouillages de Moroni :



Carte 7495 – Port de Mutsamudu :



Source : <https://iho.int/uploads/user/pubs/cb/c-55/c55.pdf>

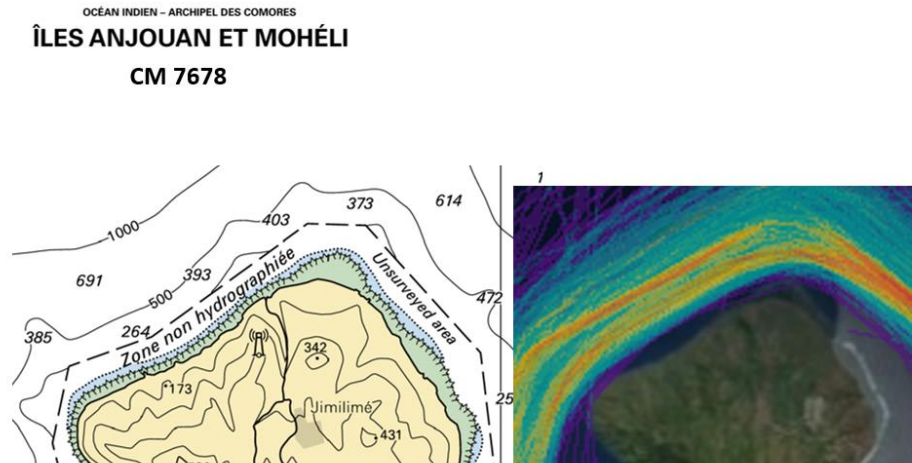
## Comoros (H)

Nautical charting / Cartographie marine / Cartografía náutica

Coverage of charts published Couverture des cartes publiées Cobertura de cartas publicadas		Offshore passage Navigation au large Pasaje offshore			Landfall and Coastal passage Atterrisage et navigation côtière Recalada y Pasaje costero			Approaches and Ports Approches et ports Aproches y puertos			
	Covered by INT or other paper charts meeting S-4 Couvert par des cartes papier INT ou autres conformes S-4 Cubiertas por cartas de papel INT o otras cumpliendo S-4	100	0	100	100	0	100	20	0	20	
	Covered by RNC meeting S-61 Couvert par des RNC conformes S-61 Cubiertas por RNC cumpliendo S-61										
	Covered by ENC meeting S-57 Couvert par des ENC conformes S-57 Cubiertas por ENC cumpliendo S-57										
Paper charts showing depth in meters Cartes papier avec les profondeurs en mètres Cartas de papel con profundidades en metros	100 %	Paper charts referenced to a satellite datum Cartes papier rattachées à un système géodésique satellitaire Cartas de papel referidas a un datum satelital			100 %			Data source Source des données Origen de los datos	France		

Comment :

- There are areas where hydrographic knowledge is insufficient or even non-existent. By correlating this knowledge with the current (including cabotage) and especially planned navigation zones, it will be possible to conduct a risk analysis and prioritize the hydrographic surveys to be carried out. This is again a subject to be submitted to the coordination committee (navigational aids included).



## 10 Responsibility for maritime safety

At the state and regulatory level, this responsibility falls to the National Agency for Maritime Affairs (ANAM) who is under the supervision of Ministry of Maritime and Air Transport (MTMA).

This agency ensures in particular compliance with the application of the maritime conventions of the International Maritime Organization (IMO).

## 11 Responsibilities of the Defense Forces (Comorian Coast Guard)

The Comorian Coast Guard (GCC) depends on the National Development Army (AND). The AEM exercise requires support in terms of hydrography and nautical cartography.

## 12 Coastal zone management and environmental protection

The subject was not specifically addressed. However, the creation of marine protected areas has been reported, which necessarily requires:


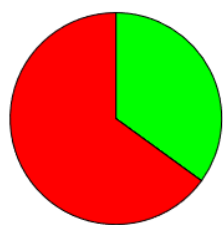
- to be managed (e.g. ecological monitoring), georeferenced data acquired at sea and on the coast (their acquisition and restitution are based on common techniques with hydrography and cartography);
- to have their limits plotted on maps.

## C-55 INDICATORS

### 13 Status of hydrographic surveys in the national maritime area

Source : <https://iho.int/uploads/user/pubs/cb/c-55/c55.pdf>

#### Comoros (H)

Hydrographic surveying / Levés hydrographiques / Levantamientos hidrográficos							
Survey coverage Couverture hydrographique Cobertura hidrográfica		Depth < 200m Profondeur < 200m Profundidad < 200m			Depth > 200m Profondeur > 200m Profundidad > 200m		
<span style="color: green;">■</span> %	Adequately surveyed Correctement hydrographié Adecuadamente levantado	26	8	66	35	0	65
<span style="color: yellow;">■</span> %	Re-survey required Nécessitant de nouveaux levés Requiere nuevo levantamiento						
<span style="color: red;">■</span> %	Never systematically surveyed Jamais hydrographié systématiquement Nunca levantado sistemáticamente						
Notes Notes Notas	Figures provided by France (Shom).						

Note:

- these indicators are solely based on the data available to Shom: there may be surveys carried out by oceanographic research organizations or by private companies, which are not known to Shom and therefore not used on nautical charts and in the C-55 indicator;
- they clearly show the lack of hydrographic knowledge in depths lower or higher than 200 m
- as presented in chapter 9, hydrographic knowledge is particularly weak near the coasts (many unsurveyed areas).

### 14 Collection and circulation of nautical information

SCP and GCC, the main observers at sea, should provide information to:

- South Africa to issue, if necessary, NAVAREA VII warnings (rapid broadcast on Inmarsat);
- France (Shom), through ANAM, in order to update nautical publications in a timely manner, in particular by notice to mariners. The transmission should be based on a state organization to be put in place (ANAM).

The flow of information must relate to:

- nautical charts (eg: new depths, guaranteed dredging depths, new quays, new navigational aids, wrecks removed, submarine cables, etc.);
- sailing directions;
- list of lights;
- tides. Harmonic constants used for predictions to be made more reliable and accurate using water level observations (currently non-existent or non-operational tide gauges).

## 15 Hydrographic survey capacity

This capacity is non-existent.

The consequences are very harmful in terms of port operations (arrival and loading of poorly controlled ships due to lack of knowledge of the seabed: depth, nature, obstructions) and ultimately the maritime economy.

It is possible to develop this capacity at a lower cost with an extremely short return on investment. Above all, this requires organization (see the National Coordination Committee) and funding (estimated at less than €50,000).

These capabilities consist of:

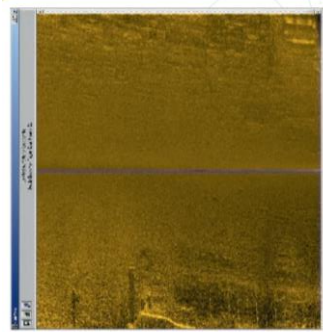
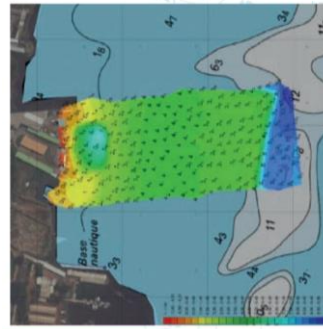
- floating means (boats, inflatable boats): they exist at the GCC and the SCP



- an acoustic echo sounder (single beam sufficient)
- a side scan sonar for detecting obstructions
- localization GPS (there are some at the Cartography Cell)
- a data acquisition system (PC and specific software)
- tide scales and leveling means
- boat maneuvering skills (sailor)
- human skills in the acquisition and processing of hydrographic data (hydrographer, geomatician)

Regarding this specific equipment, there are portable integrated systems (in suitcases that can be moved by plane to circulate between the islands) which are marketed.





**Note :**

Reference : lien sur (<https://iho.int/en/saihc18-2022> )

[https://iho.int/uploads/user/Inter-](https://iho.int/uploads/user/Inter-Regional%20Coordination/RHC/SAIHC/SAIHC18/SAIHC18_2022_6.4%20National_Report_Mauritius.pdf)

[Regional%20Coordination/RHC/SAIHC/SAIHC18/SAIHC18\\_2022\\_6.4%20National\\_Report\\_Mauritius.pdf](https://iho.int/uploads/user/Inter-Regional%20Coordination/RHC/SAIHC/SAIHC18/SAIHC18_2022_6.4%20National_Report_Mauritius.pdf)

Comoros should get closer to Mauritius (MHS: Mauritius Hydrographic Service) which has its own resources worth knowing about to identify the types of basic equipment and software to be purchased in order to start a data acquisition activity.

The referenced report is also interesting to know (or even draw inspiration from) their development trajectory (how and at what pace to build a hydro-oceanographic capacity?) in an open national framework. The MHS does not act alone. It has "stakeholders" and "parastatal bodies" where we may find the types of organizations deserving to integrate the National Coordination Committee to be created in Comoros.

## 16 Independent nautical chart production capacity

There are no official capacities for the production of nautical charts, nor for their updating and distribution. This is entrusted to France (Shom) under an administrative arrangement with the Comoros renewed in 2019.

## COORDINATION AND CAPACITY BUILDING PROPOSAL

### 17 National Coordination/Consultation Committee (Hydrography, Physical Oceanography, Marine Cartography, Aids to Navigation)

The necessary hydrographic activities will very probably not be able to develop without the pooling of resources at the country level. It is up to the main organization which will be responsible for it to be able to consider all current and future needs extended to the whole country.

At the heart of pooling:

- acquisitions of hydro-oceanographic data at sea (coast) and in ports with existing ships or embarkation;
- their qualifications, archiving, shared distribution;
- shared projects (navigation, marine environment) on the creation of a “marine geosciences” knowledge base.

The Technical Visit does not conclude with the creation of an additional committee/commission if one already exists in “maritime” matters (safety, security, environment, economy, etc.). But the coordination must be well organized (strong recommendation of the IHO for all countries). The multidisciplinary and interministerial nature of the issues must undoubtedly be able to be organized around the AEM.

Whatever its name, this committee (inter-ministerial, inter-agency) will be an essential link in the operational organization of the Comorian State (technical services for study, data management, production, etc.) to be set up (and therefore to be financed) for the execution of development programs in hydrography, oceanography, nautical cartography (sea and coast) and aids to navigation. The organization and execution of training in the Comoros and abroad is part of the development programs and therefore the subjects of the committee.

#### Propositions :

- First of all: gather around a table the potential actors of this future committee to first precisely define its mandate and its members. IHO publication M2 provides IHO recommendations “The need for national hydrographic services”:  
[https://iho.int/uploads/user/pubs/misc/M-2\\_3.0.7\\_E\\_06142018.pdf](https://iho.int/uploads/user/pubs/misc/M-2_3.0.7_E_06142018.pdf);
- It is a question of launching a dynamic at the institutional and technical levels, by specifying the corresponding actors: hydrographers, oceanographers, aids to navigation, surveyors, geomaticians, cartographers without forgetting the support functions in particular in computer science;
- The collection of needs (navigation, environment, etc.) in products (eg maps) and services (eg tide forecasts, extreme coastal events, etc.) will naturally lead to specifying the needs for the acquisition of hydrographic and oceanographic data. An essential step before prioritizing these acquisitions, and planning them by identifying the organizations (to be supported) or companies (to be contracted) that can carry them out;



- The collection of data is only economically conceivable if these are widely shared (one data - several applications – the SOLAS application through nautical documents being only one among others) and exploited. This raises the problem of archiving and disseminating data at the national level. Techniques and tools are better and better mastered with databases and communication and downloading portals. The fact remains that this requires IT structures and dedicated skills to be set up. This is a fundamental structural point to put on the agenda of the first meeting: setting up a marine geospatial data infrastructure (IDGM in French, MSDI – Maritime Spatial Data Infrastructure in English). Here too, it must be possible to rely on what already exists.

## 18 Phase 1 Hydrographic capacities: MSI and GMDSS

### 18.1 Introduction

Maritime Safety Information (MSI), as defined in International Maritime Organization Resolution A.705(17) and detailed in the joint IHO/IMO/WMO Handbook on MSI (IHO Special Publication S-53), consist of the collection and dissemination of navigational and weather warnings, search and rescue information and other urgent safety information, including nautical information relating to nautical documentation.

The dissemination of these MSI is based on the Global Maritime Distress and Safety System (GMDSS) an international system that uses telecommunications means for search and rescue at sea (SAR) and the prevention of maritime accidents.

In addition, MSIs in their broadest sense include the updating of navigation charts and other nautical publications (list of lights, radio signal, sailing directions, etc.). The MSIs need an organization (procedures for collecting, transcribing and transmitting information, maintained equipment, trained personnel) with a national MSI coordinator in relation with the navigators, the cartographic authority (France /Shom) and NAVAREA VII (South Africa/ SANHO).

### 18.1 Level of development

Phase	Object	Level of de development - Remarks
	Collection and transmission of maritime safety information / nautical information (MSI) to NAVAREA II, transmission of corrections to nautical publications in particular nautical charts to Shom	To be confirmed <i>“The country fulfills its national obligations in a sustainable manner”</i> It is not proven that all MSI are communicated to the NAVAREA VII coordinator (South Africa). Shom can receive, via ANAM, information for updating charts. An inter-ministerial instruction where efficiency must above all count, may specify the roles of the stakeholders: GCC, SCP, ANAM, etc.

Reference : « MSI Assessment for NAVAREA VII » sur :

[https://iho.int/uploads/user/Inter-Regional%20Coordination/WWNWS/WWNWS14/WWNWS14\\_2-1\\_VII\\_2022\\_NAVAREA\\_VII\\_SA.pdf](https://iho.int/uploads/user/Inter-Regional%20Coordination/WWNWS/WWNWS14/WWNWS14_2-1_VII_2022_NAVAREA_VII_SA.pdf)

## 19 Phase 2 Hydrographic capacities: conducting surveys

### 19.1 Introduction

These capacities mainly consist in conducting bathymetric surveys (depths referred to the level of the lowest astronomical tide - considering tides).

While the offshore bathymetry can be improved (circumstantial and not continuous) during hydro-oceanographic surveys conducted by third countries (e.g. France/Shom within the framework of cooperation), that of the ports (possible rapid changes) must imperatively be managed by the country. This port hydrography capacity would make it possible to meet national coastal needs in shallow waters (mostly unknown).

### 19.2 Level of development

Phase	Object	Level of de development - Remarks
2	Hydrographic and oceanographic surveys through data acquisition	<p><b>Eventually</b></p> <p><i>“The country is aware of its national obligations but does not have “national” means to do it”</i></p> <p>It is sorely lacking in bathymetric resources. The actual depths in the ports (along the quays) are uncertain, generating both risks (bottoms lower than the soundings of the official nautical charts) and port under-exploitation (bottoms estimated to be lower than reality). Obstructions (anchors, chains, containers, etc.) could exist in navigation, waiting or even mooring areas. The tide, for lack of observatory (that of the IOC is no longer operational), but also of skills is not mastered. Among other things, it is necessary to define the hydrographic datums (levels of the lowest astronomical tides referenced on nautical charts) wherever hydrographic surveys must be conducted (and the tides predicted).</p> <p>This lack of bathymetric equipment (GPS, echo sounder, side scan sonar for detecting obstructions, tidal observatory) is also detrimental to the development of new ports (e.g. Inter-island connectivity project) and the control of new marine protected areas. However, the country does not lack embarkations: GCC and/or SCP or skills in geolocation or geomatics (e.g. Cartography Unit)</p> <p>It is nevertheless certain that a hydrographic capability (embarkation, echo sounder, GPS, simple tide gauge, PC, trained personnel) is not out of reach once all the stakeholders have taken the time to meet, share their needs and pool their resources. This is</p>

		<p>above all the interest of the National Hydrography Coordinating Committee (we will add oceanography, nautical cartography and aids to navigation) to constitute</p> <p><b>PHASE 2 (surveys in shallow waters) IS A PRIORITY</b></p> <p>Please note that mastering the conduct of hydro-oceanographic surveys includes their specification (upstream) and their qualification (ultimately downstream). Two skills that are also essential when operations are outsourced. It is indeed necessary to be in a position to obtain just enough at the right price (subcontractors must not be judge and judged as for example for dredging).</p>
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## 20 Phase 3 Hydrographic capacities: production of nautical charts

### 20.1 Introduction

This is, above all, to provide mariners with official nautical charts that meet SOLAS requirements. This provision can be provided by Comoros or in an organized manner with a third country. Due to less significant regulatory constraints (standards, updating and dissemination), cartographic documents (geomatics) for various applications such as coastal development, management of marine protected areas, environmental monitoring or specific AEM maps, must be able to be produced by Comoros itself.

### 20.2 Level of development

Phase	Object	Level of de development - Remarks
3	Production of nautical charts and publications	<p><b>Eventually</b></p> <p><i>“The country fulfills its national obligations through a third party”</i></p> <p>An administrative arrangement currently organizes cooperation with France and, in particular, enables compliance with the SOLAS convention. This must continue. It is nevertheless logical and necessary that Comoros can gradually gain autonomy and already meet specific cartographic needs such as sovereignty maps of State Action at Sea. It is therefore necessary to clearly identify the already existing capacities in terms of geomatics in order to pool them through joint projects. This is one of the first actions to be carried out within the “National Coordination Committee”.</p> <p>It is by exchanging data (and metadata) with the Shom, and simultaneously checking how these are used to update nautical charts, that the transfer of skills can be initiated.</p> <p>Two proposals:</p> <ul style="list-style-type: none"> <li>• In connection with the port pilots (SCP) of Mutsamundu, ANAM will be able to write a text (eg decree) on the waiting or mooring areas of the port which can then be shown on the nautical chart,</li> </ul>

		<ul style="list-style-type: none"> <li>Gather the documents relating to the new ports of the inter-island connectivity project in order to prepare the update of the nautical charts (including possible additions of detail cartridges).</li> </ul>
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## 21 Summary of the assessment of national hydrographic capacities - Table

OHI IHO	CHAIA SAIHC	CNH NHC (1)	Phase 1 (2) Capacity	Phase 2 (3) Capacity	Phase 3 Capacity
NON Member	Associated Member	NO	NO	NO (3)	NO (4)

(1) National Hydrographic Committee (role of national coordination) (National Coordination Committee)

(2) Maritime Safety Information

(3) Hydro-oceanographic surveys (priority to be given to ports) through data acquisition and archiving

(4) "SOLAS" charting. Co-publishing with France (Shom) under an administrative arrangement

## FORMATION

### 22 Basic training of hydrographic technicians (not only!)

#### Initial training of hydrographers

This is fundamental.

The Comoros do not currently have any staff with sufficient specific training in hydrography. It will be necessary to deal with it gradually and already have a qualified hydrographer technician. The recommended training is that offered by schools whose programs are approved by the FIG/IHO/ICA (International Federation of Surveyors, International Hydrographic Organization, International Cartographic Association) with Category B (CAT B).

The practical training which supplements the theoretical training of the schools will be, for the hydrographers with port vocation, opportunely carried out in a port operating dredging and having a service in charge of hydrography.

Shom's school (French-speaking) offers training approved in Category B: the Superior Certificate of Hydrographers, the program of which can be consulted (page 43) on:

[https://www.shom.fr/sites/default/files/2020-10/Offre\\_formation\\_2020-2021\\_Web.pdf](https://www.shom.fr/sites/default/files/2020-10/Offre_formation_2020-2021_Web.pdf)

Point of contact at Shom: Chief hydrographer engineer Ronan Le Roy, head of the Shom training division and director of education: [drh-for-d@shom.fr](mailto:drh-for-d@shom.fr).

This license level 3 training is very demanding in terms of initial knowledge of mathematics and physics. It can be followed by young people who already have experience in geomatics, geodesy, physical oceanography or even maritime navigation.

This training will give enough versatility to future students to satisfy almost all the skills needed for data acquisition at sea and on the coast. The CAT B hydrographer can, on his return to his country, train the "hydrographer's assistants" that the country needs ("CAT C").

Requests for training have been made in this regard by ANAM (Letter No. 20 -168 /ANAM/DG of December 16, 2020). Shom responded to this in its annual Administrative Arrangement follow-up letter (No. 020 Shom/DMI/NP of June 3, 2022). The issue of funding is addressed here.

Note: the human investment must be accompanied by an investment in equipment so that the trained personnel can immediately after their training put their knowledge into practice and thereby acquire the field experience necessary for the obtaining full FIG/IHO/ICA "Category B" certification.

#### Initial training of "marine" cartographers

This is also an objective worth considering, even if it is less urgent than in hydrography. The country will eventually need cartographic services to cover the waters under its sovereignty.

It is moreover this "cartographic" desire that will generate the need for data and therefore for hydrographic surveys.

The progressive part that the Comoros will take in the production of nautical charts (therefore in connection with the Shom), its own capacity to produce sovereignty charts for the AEM, can only benefit from solid training in cartography dedicated to navigation sea.

A category B training (CAT B) is therefore recommended. Shom's school (French-speaking) offers such a CAT B training course: Marine cartography technician preparation course, the program of

which can be consulted (page 48) again on [https://www.shom.fr/sites/default/files/2020-10/Offre\\_formation\\_2020-2021\\_Web.pdf](https://www.shom.fr/sites/default/files/2020-10/Offre_formation_2020-2021_Web.pdf).

It is however necessary to note that, unlike the Shom Category B approved hydrographer training, this cartographer preparation training is not open every year but on an irregular basis depending on the internal needs Shom (generally with a frequency of 5/6 years between each session).

Point of contact at Shom: Chief hydrographer engineer Ronan Le Roy, head of the Shom training division and director of education: [drh-for-d@shom.fr](mailto:drh-for-d@shom.fr).

### **Also have "support" and "managerial" skills - Apply**

The personnel, once trained, will have to quickly put their theoretical knowledge (school) into practice and then validate their practical qualification after two years: that is to say, move on to operations by conducting surveys exploited by cartographers and marine environment specialists. It is also recalled the importance:

- the "Support" function in specific equipment (GPS, echo sounder, tide gauges, etc.): maintenance in operational condition of equipment, IT (software, databases, webmaster, etc.);
- the "management" function which will be very important to coordinate (committee) in a global way at the national level (inter organizations) the development of hydrography and nautical cartography of the country:
  - completeness of the needs (to be planned) to be met (navigation, coastal development, coastal protection, etc.);
  - definition of the corresponding products (charts in particular);
  - identification of all stakeholders (public and private) who have an interest in cooperating to derive benefits (they come together to pool capacities);
  - definition of the production systems to be implemented: hydro-oceanographic, cartographic and support functions (logistics);
  - definition of the means of intervention at sea (boats, embarkations);
  - definition of infrastructures on land for data processing and archiving;
  - definition of governance (supervision, contracts of objectives and means, therefore financing, agreements);
  - definition of human resources needs in sufficient quantity and quality for all structures and all professions combined.

## **23 Continuous training in hydro-oceano-cartography and related activities (aids to navigation, port infrastructure development and coastal protection) - Management**

### **At the international level in hydrography**

There are actually many opportunities and facilities to maintain knowledge in hydrography. It is still necessary to know them and be encouraged to follow them.

- IHO:

- which offers training materials at: <https://iho.int/fr/publications-sur-le-renforcement-des-capacites> . In particular, there is a high-quality hydrography manual;
- who organizes seminars. In particular, SAIHC will organize a seminar "Raising Hydrographic Awareness (for SAIHC Associate and Non-Members)" which will precede SAIHC 19 in 2023 (<https://iho.int/en/southern-african-and-islands-hc> )
- Shom (<https://www.shom.fr/> ) which in addition to the statutory training of its school (CAT B) also offers opportunities for training in tide gauges (<https://www.sonel.org/>);
- AFHy: Association Francophone d'Hydrographie (<https://www.afhy.fr/> ) where in particular hydro-cartographers of ports and rivers meet.

**Note :**

- Also identify the E-learning opportunities that will develop, in particular the future IHO E-learning platform within which training materials will be available.
- There is a need for regional training schools (Central and Southern Africa) in hydro-oceanography-cartography. It is necessary to get out of the current situation where there would be no other alternative than to enroll the agents to be trained in hydrographic schools outside the African continent. They may be French or English speaking.
- The technical visit did not address this fundamental subject and therefore did not make it possible to identify the structures (schools, academies, etc.) ready (immediately or in the long term) to host, in the region (Central and Southern Africa, South Indian Ocean) certified hydrographer and cartographer training.

**Various at national level (Comoros)**

It is possible that national skills (public, private) could not be inventoried during the Technical Visit, such as:

- qualified surveyors;
- specialists in remote sensing (a mean widely used in hydrography);
- professionals in GIS (Geographic Information Systems) (in support of the professions mentioned above). It is nevertheless confirmed that the Cartography Unit of the Department of Territorial Development, Urban Planning and Housing has GIS skills;
- IT specialists skilled in databases or even distribution websites;
- engineers and technicians from engineering companies.

These are transversal skills essential to the development of hydro-oceanography-cartography. They constitute a potentially poolable, at least complementary, skills base on which the Comoros can rely. These skills will be particularly important within the national coordination committee. Participation in IHO meetings and more particularly in SAIHC meetings and seminars makes it possible to exchange with counterparts from other coastal States of Southern Africa and the Indian Ocean.

Editor



Henri DOLOU



## ANNEXES

### Annex A : Abbreviations

AEM	Action de l'État en Mer <i>State action at sea</i>
ANAM	Agence Nationale des Affaires Maritimes <i>National Agency for Maritime Affairs</i>
AND	Armée Nationale de Développement <i>National Development Army</i>
CATZOC	Category Zone of Confidence Catégorie Zone de confiance
CBSC	Capacity Building Sub-Committee (IHO) Sous-comité de renforcement des capacités (OHI)
CBWP	Capacity Building Work Programme (IHO) Programme de travail de renforcement des capacités (OHI)
CHN	Comité Hydrographique National <i>National Hydrographic Committee</i>
DATUH (SIG)	Direction de l'Aménagement du Territoire, de l'Urbanisme et de l'Habitat <i>Department of Territorial Development, Urban Planning and Housing</i> Cellule de Cartographie (CC) <i>Cartography Unit</i>
SAIHC CHAIA	<i>Southern African and Islands Hydrographic Commission</i> Commission Hydrographique de l'Afrique et des Iles Australes
ECDIS	<i>Electronic Charts Display Information System</i>
ENC	<i>Electronic Navigational Chart (sea)</i> Carte électronique de navigation (mer)
GCC	Garde Côtes Comorienne <i>Coast Guard</i>
GMDSS SMDSM	<i>Global Maritime Distress and Safety System</i> Système Mondial de Détresse et de Sécurité en Mer
IALA AISM	<i>International Association of Marine Aids to Navigation and Lighthouse Authorities</i> Association Internationale de Signalisation Maritime
IHO OHI	<i>International Hydrographic Organization</i> Organisation Hydrographique Internationale
IMO OMI	<i>International Maritime Organization</i> Organisation Maritime Internationale
IOC COI	<i>Intergovernmental Oceanographic Commission</i> Commission Océanographique Intergouvernementale
MATUAFTT	Ministère de l'Aménagement du Territoire de l'Urbanisme chargé des Affaires Foncières et des Transports Terrestres
MTMA	Ministère des Transports Maritimes et Aériens <i>Ministry of Maritime and Air Transport</i>
MSI RSM	<i>Maritime Safety Information</i> Renseignement de Sécurité Maritime
MRCC	<i>Maritime Rescue Coordination Centre</i>
MSDI	<i>Maritime Spatial Data Infrastructure</i> Infrastructures de données spatiales maritimes

NAVAREA	<i>NAVigational AREAs (WWNWS)</i> Zones de navigation (SMAN) NAVAREA national coordinator: responsible for dissemination of MSI (RSM)
NC CM	<i>Nautical Charts</i> Carte marine
NHC CNH	<i>National Hydrographic Committee</i> Comité National Hydrographique
NtMs	<i>Notice to Mariners</i> Avis aux navigateurs
PCA	<i>Primary Charting Authority</i> Autorité cartographique principale
PICMC	Projet Connectivité Inter-Îles des Comores <i>Comoros Inter-Island Connectivity Project</i>
RHC CHR	<i>Regional Hydrographic Commission (SAIHC)</i> Commission Hydrographique Régionale (CHAIA)
SCP	Société Comorienne des Ports <i>Comorian Ports Company</i>
SGG	Secrétariat Général du Gouvernement <i>General Secretariat of the Government</i>
Shom	Service hydrographique et océanographique de la marine (France) <i>French Hydrographic and Oceanographic Service (French national hydrographic office)</i>
SMAN	Système mondial d'avertissement de navigation <i>Worldwide Navigational Warning Service (WWNWS)</i>
SMDSM	Système mondial de détresse et de sécurité en mer <i>Global Maritime Distress and Safety System (GMDSS)</i>
SOLAS	<i>[United Nations] Convention for the Safety of Life at Sea</i> Convention pour la sauvegarde de la vie humaine en mer
UDC	Université des Comores <i>University of Comoros</i>
UKHO	<i>United Kingdom Hydrographic Office</i>

## Annex B: Terms of reference of the visit team of the Regional Hydrographic Commission



### Context

The IHO (International Hydrographic Organization) Capacity Building Program aims to coordinate the development of the capacities of Member and Associate States in the field of hydrography and nautical cartography in order to meet the objectives of IHO and the obligations related to Chapter V of the SOLAS Convention, the United Nations Convention on the Law of the Sea and other international instruments.

It was thus decided:

- to promote regional cooperation in capacity building in South of Africa and islands (SAIHC: IHO Southern African and Islands Hydrographic Commission)
- to identify the potential of national and regional training centers;
- to study the possibilities of organizing regional seminars.

On the proposal of France, related to United-Kingdom which coordinates the IHO capacity building program for SAIHC, the IHO Capacity Building Sub-Committee proposes to conduct a technical visit to the country.

### Goals

The general objectives of the technical visits are as follows:

- discussions with the decision-making authorities of the country visited, emphasizing the importance of hydrography for coastal states and therefore the need to include associated hydrographic and nautical cartography activities in national plans;
- support the development of a national system for the collection and diffusion of maritime safety information (MSI) integrated within the Worldwide Navigational Warning Service (WWNWS);
- assessment of national capacities in terms of planning and carrying out the collection and use of hydrographic data in order to allow the production and updating of the nautical documentation essential for the safety of navigation and in support of others uses (infrastructure management, environmental protection, development of the blue economy, etc.);
- development of recommendations with the actors of the visited country in order to strengthen these capacities in a long-lasting and sustainable manner;
- preparation of IMO audits (IMSAS) and follow-up of recommendations in connection with hydrographic services;
- promote the emergence of development projects in the field of hydrography and nautical cartography in conjunction with IHO secretariat, IMO and funding agencies in order to obtain the sustainable establishment of capacities.

### Report

A report on the activities and recommendations of the team will be submitted to the president of the Regional Hydrographic Commission after the visits.

## Annex C: Reference texts

Note: this list (in French) is not exhaustive

### Textes de référence des Comores

Objet	Référence officielle
Promulgation de la loi N° 15-015/AU du 28 décembre 2015, portant création, fonctionnement, composition et attribution de l'Agence Nationale des Affaires Maritimes (ANAM)	Décret N° 16-019/PR du 20 janvier 2016 [Présidence de l'Union]
Composition, fonctionnement et attribution de la Direction Générale de l'ANAM	Arrêté N°17-014 /VP-MTPPTIC/CAB du 17 janvier 2017 [Ministère des Transports, des Postes Et Télécommunications, des Technologies de l'Information et de la Communication]
Organisation de l'Action de l'État en Mer (AEM)	Décret N°12-128/PR du 29 mai 2012 [Présidence de l'Union]
Création, missions et organisation de la « Garde Côtes Comorienne » (GCC)	Décret N°10-026/ PR du 12 avril 2010 [Présidence de l'Union]
Mise en place d'une Cellule de Cartographie (CC) au sein de la Direction de l'Aménagement du Territoire, de l'Urbanisme et de l'Habitat	Arrêté N°22-004 /MATUAFTT/CAB du 19 mars 2022 [Ministère de l'Aménagement du Territoire, de l'Urbanisme chargé des Affaires Foncières et des Transports Terrestres]
Statuts de la société Comorienne des Ports (SCP)	Décret N° 13 -141 /PR du 14 décembre 2013 [Présidence de l'Union]

### Texte de référence de la France (Shom)

Objet	Référence officielle
Coopération entre les Comores et la France en matière d'hydrographie, d'océanographie et de cartographie marine	Arrangement administratif du 11 novembre 2019 entre le ministre de la défense de la République française et le ministre des transports maritimes et aériens de l'Union des Comores

## Annex D: List of main contacts - Telephones - Mails

Prénom NOM	Fonction	Tél (+269)	Mail
<b>SGG</b>			
<b>Secrétariat Général</b>		<b>du Gouvernement</b>	
<b>(Présidence)</b>			
Dr Daniel ALI BANDAR	Secrétaire Général du Gouvernement		
<b>MTMA</b>			
<b>Ministère des Transports</b>		<b>Maritimes</b>	
<b>et Aériens</b>			
M Bianrifi Tharmidhi	Ministre		
ALI MOHAMED ABDALLAH	Secrétaire Général	334 27 21	<a href="mailto:amabdallah12@gmail.com">amabdallah12@gmail.com</a>
<b>ANAM</b>			
<b>Agence Nationale des</b>		<b>Affaires</b>	
<b>Maritimes</b>			
Saïd SALIM	Directeur Général	333 97 07	<a href="mailto:aicha_lubna@yahoo.fr">aicha_lubna@yahoo.fr</a>
M Mahachi AHMED	Chef du département Sécurité et Sûreté maritime Point de Contact principal	344 41 90	<a href="mailto:mahachi@comorosmaritime.org">mahachi@comorosmaritime.org</a> <a href="mailto:ahmedmahachi@outlook.fr">ahmedmahachi@outlook.fr</a>
Youssef Ahamada MOISSI	Chef du Service Navigation Maritime	323 46 23	<a href="mailto:moissipompidou@yahoo.com">moissipompidou@yahoo.com</a>
Ahamadi Abdullah	Directeur régional ANAM (Anjouan)	342 56 91	<a href="mailto:dr.anam.ndzuani@gmail.com">dr.anam.ndzuani@gmail.com</a>
Ali HOUSSEINE	Personnel à former	486 11 72	<a href="mailto:housseinali03@gmail.com">housseinali03@gmail.com</a>
<b>SCP</b>			
<b>Société Comorienne</b>		<b>des Ports</b>	
Mohamed Said Salim DAHALANE	Directeur Général (siège à Mutsamundu)		
Said ANFANE	Pilote maritime	343 25 46	<a href="mailto:anfane1976@gmail.com">anfane1976@gmail.com</a>
Aboubacar Hounali	Commandant du port Mutsamundu	332 33 16	
Abdouri Hamane Gamal	Pilote Portuaire Mutsamundu	339 82 53	
Bacha Chefou	Commandant du port Moroni	339 59 29	
Abdoulkarim Youssef	Chef des opérations et Pilote Portuaire Moroni	358 48 43	<a href="mailto:mondohakarim@yahoo.fr">mondohakarim@yahoo.fr</a>
<b>AND</b>			
<b>Armée</b>		<b>Nationale</b>	
<b>de Développement</b>			
CV Saïd Hamza	Conseiller (non rencontré)		
<b>GCC</b>			
<b>Garde-côtes</b>		<b>Comorienne</b>	
CC Mohamed ALI	Commandant en second Moroni	334 73 54	<a href="mailto:msomafils@gmail.com">msomafils@gmail.com</a>
Capitaine Ali Abdoul-Kader	Moroni		
MTR Radjabou Ahmed	Commandant USPMAR Mutsamundu	376 25 74	
<b>DATUH</b>			
<b>Direction de</b>		<b>Territoire, de</b>	
<b>l'Aménagement du</b>		<b>l'Urbanisme</b>	
<b>et de l'Habitat</b>			
<b>Cellule</b>			
<b>de cartographie</b>			
Mohamed ABDOU	Directeur Général		

Nair Aboubacar Allaoui	Chef de la cellule cartographique. Géomètre. Cartographie, SIG	356 94 95 486 04 42	<a href="mailto:aboubacarnair@gmail.com">aboubacarnair@gmail.com</a>
<b>Direction générale</b>		<b>Environnement</b>	<b>Anjouan</b>
Halidi Ahmed Ben Ali	Chef de service (Direction régionale)	339 09 72	<a href="mailto:Ahalidibenalitahoo.fr">Ahalidibenalitahoo.fr</a>
<b>Direction de la</b>		<b>pêche</b>	<b>Moroni</b>
Mohamed Ali Mohamed	Chef des opérations	325 64 22	<a href="mailto:rachadmohamedali@gmail.com">rachadmohamedali@gmail.com</a>
<b>PICMC</b>	<b>Projet Connectivité</b>	<b>Inter-Îles</b>	<b>des Comores</b>
MOHAMED M'MADI AHAMADA	Coordinateur		<a href="mailto:coordi.connectivitecomoros@gmail.com">coordi.connectivitecomoros@gmail.com</a>
BAKRI OUMOUR	Responsable Transport Maritime et Ports	344 90 56	<a href="mailto:rpm.connectivitecomoros@gmail.com">rpm.connectivitecomoros@gmail.com</a>
<b>Shom (OHI)</b>	<b>France</b>	<b>(+33)</b>	
M Henri DOLOU	Expert	(0) 6 86 15 14 82	<a href="mailto:henri.dolou@shom.fr">henri.dolou@shom.fr</a>
M Pierre-Yves DUPUY	Directeur des missions institutionnelles et des relations internationales	(0) 2 56 31 24 04 (0) 6 38 78 59 55	<a href="mailto:pierre-yves.dupuy@shom.fr">pierre-yves.dupuy@shom.fr</a>
M Julien SMEECKAERT	Chef de la division des relations extérieures	(0) 2 56 31 97 81 / (0) 6 03 20 13 77	<a href="mailto:dmi-rex-d@shom.fr">dmi-rex-d@shom.fr</a> <a href="mailto:julien.smeekaert@shom.fr">julien.smeekaert@shom.fr</a>
Mme Salomé LARSONNEAU	Adjointe Relations extérieures	(0) 2 56 31 97 82	<a href="mailto:salome.larsonneau@shom.fr">salome.larsonneau@shom.fr</a>
M Ronan LE ROY	Directeur de l'enseignement de l'école du Shom	(0) 2 56 31 24 09	<a href="mailto:ronan.le.roy@shom.fr">ronan.le.roy@shom.fr</a>
M Eric MAUGER	Expert nautique Bureau Afrique	(0) 2 56 31 24 39	<a href="mailto:eric.mauger@shom.fr">eric.mauger@shom.fr</a> <a href="mailto:na-om@shom.fr">na-om@shom.fr</a>
M Dominique LE PENN	Remplaçant d'Eric MAUGER à/c décembre 2022		
<b>UKHO (OHI)</b>	<b>Royaume-Uni</b>	<b>(+44)</b>	
Ms Lucy Fieldhouse	International Capacity Building Manager (SAIHC)	DD : <u>+44 (0) 1823 483335</u> Mobile <u>+44 (0) 7989 152246</u>	<a href="mailto:Lucy.Fieldhouse@UKHO.gov.uk">Lucy.Fieldhouse@UKHO.gov.uk</a>

#### Divers

- La SPC a remplacé l'APC (Autorité Portuaire des Comores)
- La DATUH (cellule cartographique) est rattachée au Ministère de l'Aménagement du Territoire de l'Urbanisme chargé des Affaires Foncières et des Transports Terrestres (MATUAFTT)

## Annex E : Agenda – Event

Object – Event	Observations
<b>J1 : Monday 17 October 2022</b>	<b>Grande Comore (Moroni)</b>
➤ ANAM (Agence Nationale des Affaires maritimes)	Saïd SALIM (Directeur Général)
➤ SGG (Secrétariat Général du Gouvernement)	Dr Daniel ALI BANDAR (Secrétaire Général)
➤ DATUH (Direction de l'Aménagement du Territoire, de l'Urbanisme et de l'Habitat) <ul style="list-style-type: none"> <li>○ Cellule de Cartographie (SIG)</li> </ul>	Mohamed ABDOU (Directeur Général) Nair Aboubacar (Chef cellule)
➤ MTMA (Ministère des Transports Maritimes et Aériens)	ALI MOHAMED ABDALLAH (Secrétaire Général)
➤ GCC (Garde Côtes Comorienne)	Capitaine de Corvette Mohamed ALI (Commandant en second)
<b>J2 : Tuesday 18 October 2022</b>	<b>Anjouan (Ouani, Mutsamudu)</b>
➤ Passage appontement Ouani	
➤ Visite du port de Mutsamudu (Directeur et Commandant du port, ANAM)	Aboubacar Hounali (Cdt du port) (SCP : Société Comorienne des Ports)
<b>J3 : Wednesday 19 October 2022</b>	<b>Anjouan (Patsy, Mutsamudu)</b>
➤ Conférence à l'Université de Patsy	Chef du département géographie
➤ Entretien présidence université	Président de l'université
➤ Réunion au port de Mutsamudu (ANAM, SCP dont pilote, GCC, Direction Régionale de l'environnement)	Abdouri Hamane Gamal (Pilote) (SCP) Ahamadi Abdullah (Directeur régional – ANAM) MTR Radjabou Ahmed (GCC) Halidi Ahmed Ben Ali (environnement) Direction Générale ANAM
<b>J4 : Thursday 20 October 2022</b>	<b>Grande Comore (Moroni)</b>
➤ SCP (Chef des opérations et pilote, Commandant du port),	Bacha Chefou (Cdt du port)
➤ Visite du port de Moroni	Abdoulkarim Youssouf (Chef des opérations et Pilote Portuaire )
<b>J5 : Friday 21 October 2022</b>	<b>Grande Comore (Moroni)</b>
➤ Restitution (conclusions – recommandations) de la mission animée par le Secrétaire Général du Gouvernement en présence de représentants de l'ANAM, SCP, GCC, Direction de la pêche	Dr Daniel ALI BANDAR (Secrétaire Général) Saïd SALIM (Directeur Général- ANAM) + collaborateurs
➤ PICMC (Projet Connectivité Inter-Îles des Comores)	OUMOURI BAKRI (Responsable de Transport Maritime et Ports)
<b>J6 : Saturday 22 October 2022</b>	<b>Grande Comore (Moroni)</b>
➤ Visite complémentaire au MTAM pour rencontre avec ministre et cabinet	M Bianrifi Tharmidhi (Ministre des transports) Ali Ahamada Moelevou (Directeur de Cabinet) Said Salim (Directeur Général de l'ANAM)



## Annex F : Photos

### Annex F-1 : Grande Comore (Moroni)



#### Agence Nationale des Affaires maritimes (ANAM)

De gauche à droite (from left to right) : Mahachi AHMED, Saïd SALIM (Directeur Général), Henri DOLOU, Anfifdine Ali Tohiri, Azhari Said ,Youssef Ahamada MOISSI



#### Secrétariat Général du Gouvernement (SGG)

De gauche à droite : Mahachi AHMED, Henri DOLOU, DR Daniel ALI BANDAR (Secrétaire Général), Saïd SALIM (Directeur Général de l'ANAM), Youssef Ahamada MOISSI



#### Ministère des Transports Maritimes et Aériens (MTMA)

De gauche à droite : Ali Ahamada Moelevou (MTMA/Directeur de Cabinet), Ali Mohamed Abdallah (MTMA/Secrétaire Général), Saïd SALIM (ANAM/DG), BIANRIFI THARMIDHI (MTMA/Ministre), Henri DOLOU (OHI/Shom), Mahachi AHMED (ANAM)



**Direction de l'Aménagement du Territoire, de l'Urbanisme et de l'Habitat  
(Mohamed ABDOU - Directeur Général)**



**Direction de l'Aménagement du Territoire, de l'Urbanisme et de l'Habitat  
Cellule de cartographie**



**Ministère des Transports Maritimes et Aériens (MTMA)  
Au centre M ALI MOHAMED ABDALLAH Secrétaire Général**



### **Garde-côtes Comorienne (GCC)**

**Au centre le Capitaine de Corvette Mohamed ALI Commandant en second**



### **Société Comorienne des Ports (SCP) - Moroni**

**De gauche à droite Youssouf ABDULKARIM (Chef des opérations et pilote), Henri DOLOU, Bacha CHEFOU (Commandant du port), Youssouf Ahamada MOISSI, Mahachi AHMED**



### **Secrétariat Général du Gouvernement (SGG)**

**SGG (Secrétaire Général au centre), ANAM, GCC, SCP, Direction de la Pêche lors de la réunion de restitution**





**Projet Connectivité Inter-Iles des Comores**



**Mme Zainaba Abdallah (ANAM/Département juridique)  
Présidente de la section Comores de l'Association des Femmes du  
Secteur Maritime de l'Est et du Sud de l'Afrique (WOMESA)**

## Annex F-2 : Anjouan (Mutsamudu)



**Port de Mutsamudu**  
(ANAM et SCP : Directeur Général et Commandant du port)



**Université de Patsy**  
Conférence sur l'hydrographie, l'océanographie et la cartographie marine



**Université de Patsy -Département géographie**

## Comoros / Comores

### AGENCE NATIONALE DES AFFAIRES MARITIMES (ANAM)

Contact information / Informations de contact / Información de contacto

<ul style="list-style-type: none"> <li>- National Hydrographer or equivalent</li> <li>- Hydrographe national ou équivalent</li> <li>- Hidrógrafo Nacional o equivalente</li> </ul>	<ul style="list-style-type: none"> <li>- M Saïd SALIM Directeur Général                             <ul style="list-style-type: none"> <li>o (+269) 333 97 07</li> <li>o <a href="mailto:aicha_lubna@yahoo.fr">aicha_lubna@yahoo.fr</a></li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>- Other point(s) of contact</li> <li>- Autre(s) point(s) de contact</li> <li>- Otros punto(s) de contacto</li> </ul>	<ul style="list-style-type: none"> <li>- M Mahachi AHMED Chef du département Sécurité et Sûreté maritime                             <ul style="list-style-type: none"> <li>o (+269) 344 41 90</li> <li>o <a href="mailto:mahachi@comorosmaritime.org">mahachi@comorosmaritime.org</a></li> <li>o <a href="mailto:ahmedmahachi@outlook.fr">ahmedmahachi@outlook.fr</a></li> </ul> </li> <li>- M Youssef Ahamada MOISSI, Chef du Service Aides à la Navigation                             <ul style="list-style-type: none"> <li>o (+269) 323 46 23</li> <li>o <a href="mailto:moissipompidou@yahoo.com">moissipompidou@yahoo.com</a></li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>- Web site</li> <li>- site web</li> <li>- sitio web</li> </ul>	<ul style="list-style-type: none"> <li>- <a href="https://www.comorosmaritime.org/en/">https://www.comorosmaritime.org/en/</a></li> </ul>

Agency information / Information sur l'agence / Información sobre la agencia

<ul style="list-style-type: none"> <li>- Top level parent organization</li> <li>- Organisme mère</li> <li>- Organización asociada de nivel superior</li> </ul>	<ul style="list-style-type: none"> <li>- Ministère des Transports Maritimes et Aériens (MTMA)</li> </ul>
<ul style="list-style-type: none"> <li>- Principal functions of the organization or the department</li> <li>- Attributions principales de l'organisme ou du département</li> <li>- Principales funciones de la Organización o el departamento</li> </ul>	<ul style="list-style-type: none"> <li>- Mise en œuvre de la politique de l'État en matière de conventions maritimes internationales (organisme régulateur).</li> <li>- Concernant la navigation maritime, elle est chargée :                             <ul style="list-style-type: none"> <li>o de l'organisation du trafic et des règles de circulation dans les eaux archipélagiques,</li> <li>o des aides à la navigation ;</li> <li>o du recueil et compilation des données hydrographiques en vue de la diffusion et de la publication ainsi que la mise à jour des tous les renseignements nautiques nécessaires à la sécurité de la navigation, conformément aux prescriptions internationales en vigueur ;</li> <li>o des déterminations des modalités d'application du SMDSM et organisation de son fonctionnement ;</li> <li>o des animations et coordinations des administrations et organismes dotés d'attributions en mer et sur le littoral. Le Directeur Général de l'ANAM exerce les</li> </ul> </li> </ul>

	fonctions de Coordonnateur de l'AEM (Action de l'État en Mer).
-Other information of interest -Autres informations utiles -Otra información de interés	Les cartes marines papier, les cartes électroniques de navigation et les autres publications nautiques (livres des feux, annuaires des marées, instructions nautiques ...) sont réalisées par des pays tiers. La France (Shom : Service hydrographique et océanographique de la marine) est responsable cartographique dans le cadre d'un arrangement administratif signé avec les Comores

### SOCIETE COMORIENNE DES PORTS (SCP)

Contact information / Informations de contact / Información de contacto

- Other point(s) of contact - Autre(s) point(s) de contact - Otros punto(s) de contacto	- M Said ANFANE o (+269) 343 25 46 o <a href="mailto:anfane1976@gmail.com">anfane1976@gmail.com</a> - M Zouboudou Koundjourou HALIFA o (+269) 323 07 24 o <a href="mailto:hzouboudou@yahoo.fr">hzouboudou@yahoo.fr</a>
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Agency information / Information sur l'agence / Información sobre la agencia

- Top level parent organization - Organisme mère - Organización asociada de nivel superior	- Ministère des Transports Maritimes et Aériens (MTMA)
- Principal functions of the organization or the department - Attributions principales de l'organisme ou du département - Principales funciones de la Organización o el departamento	- Parmi ses missions : o les aides à la navigation ; o l'entretien des profondeurs dans les bassins et accès - Une direction du port est ouverte dans chaque île
-Other information of interest -Autres informations utiles -Otra información de interés	La SCP travaille étroitement avec l'ANAM

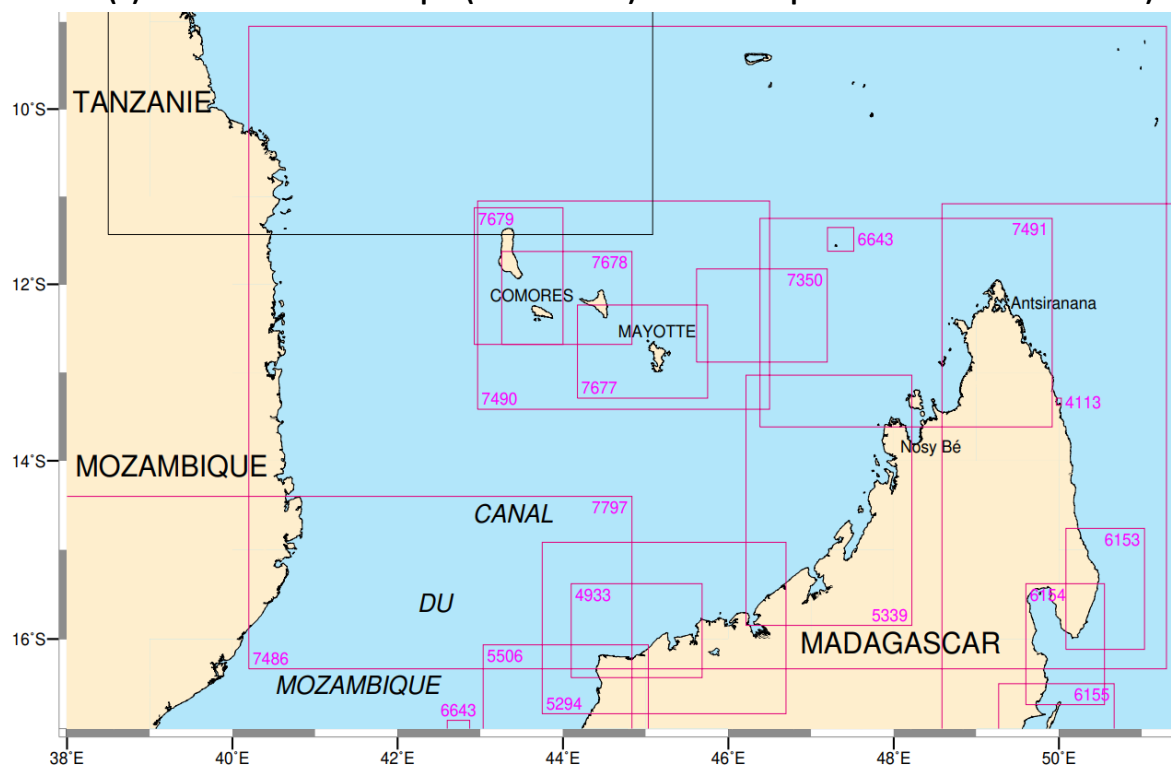


## Annex H: Charting (Paper charts and Electronic Navigational Charts)

Sources : Shom (<https://services.data.shom.fr/static/catalog/4A/004-ZKA.pdf>)

Nota: l'UKHO produit également des cartes papier

### Cartes (2) du Canal du Mozambique (1 : 1 075 000) et de l'Archipel des Comores : 1 : 350 000

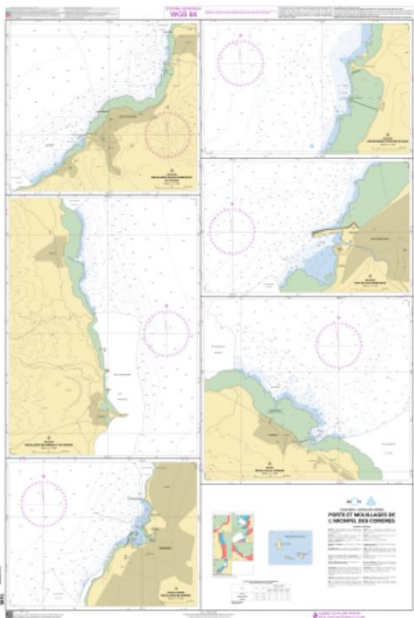


N° FR	N° INT	Titre	1 : Échelle	Année publication ou édition	ENC correspondante
7486	7055	Canal du Mozambique - Partie Nord	1 075 000	2013	FR274860 (1 : 700 000)
7490	7710	Archipel des Comores	350 000	2019	FR374900 (1 : 180 000)

### Cartes (3) des îles (1 : 156 000)

N° FR	N° INT	Titre	1 : Échelle	Année publication ou édition	ENC correspondante
7677		Île de Mayotte (et Anjouan – partiel)	156 000	2013	FR477677 (ne couvre que Mayotte)
7678		Îles Anjouan et Mohéli	156 000	2012	FR476780 (ne couvre que Anjouan) (1 : 90 000)
7679		Îles Grande Comore et Mohéli	156 000	2012	FR476790 (1 : 180 000)

### Cartes (1 papier, 6 ENC) des ports et mouillages (échelles diverses)

	N° FR	Titre	1 : Échelle	Année publication ou édition	ENC correspondante
	<b>7495*</b>	Ports et mouillages de l'archipel des Comores	Diverses	2017	
		Anjouan - Mouillages de Moutsamoudou et d'Ouani	12 000	2017	<b>FR57495A (1 : 12 000)</b>
		Anjouan - Appontement pétrolier d'Ouani	5 000	2017	<b>FR67495B (1 : 5 000)</b>
		Anjouan - Port de Moutsamoudou	5 000	2017	<b>FR67495C (1 : 5 000)</b>
		Anjouan - Mouillages de Bambao et de Domoni	12 000	2017	<b>FR57495D (1 : 12 000)</b>
		Mohéli - Mouillage de Fomboni	12 000	2017	<b>FR57495E (1 : 12 000)</b>
		Grande Comore - Mouillage de Moroni	8 000	2017	<b>FR57495F (1 : 8 000)</b>

\* carte(s) portant les armoiries de l'Union des Comores, conformément au § 3.1.1. de l'article 3 de l'arrangement administratif. Il en sera fait de même (ou le logo de l'Agence Nationale des Affaires Maritimes de l'Union des Comores ANAM) à l'occasion de toute nouvelle édition des autres cartes qui couvrent exclusivement les « eaux » de l'Union des Comores.

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