HTTPS://DONIA.FR/MANAGER/

DONIA
ENJOY & PROTECT THE SEA TOGETHER

MANAGER MODULE



FOR ALL QUESTIONS RELATED TO DONIA :

donia@andromede-ocean.com

2026 – https://donia.fr/

ANDROMEDE OCEANOLOGIE

RÉPUBLIQUE FRANÇAISE
Liberté
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agence de l'eau RHÔNE MÉDITERRANÉE CORSE

NAOS

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Preamble

Andromède Océanologie created **DONIA** in 2013, in partnership with the Rhône Méditerranée Corse Water Agency. It is a community application for navigation and anchoring assistance outside fragile ecosystems such as underwater seagrass beds (posidonia, cymodocea, eelgrass) and coralligenous reefs.

In version 7, released in2026, **ergonomics and fluidity** have been improved, **data and functionalities** have been added, and **new seabed maps** have been produced. Thanks to a new partnership, the DONIA application, developed and published by Andromède Océanologie, with the financial and technical support of the Rhône Méditerranée Corse Water Agency and Naos, became **totally free in 2021**.

Several modules have been developed over the last few years, including a **DONIA Manager module**, which monitors anchoring activity on the coast by analysing positioning data from AIS (*Automatic Identification System*) sources and the positions of boats using DONIA. Accessible on the internet with a login and password, the DONIA Manager module gives access to a **real time module**, i.e. to real time data on small and large yachts sailing or anchored in a management zone. In order to enrich the manager's experience, a **historical module** has also been available since 2021 to make historical data available (all information concerning pleasure craft moorings since 2010 with a list of indicators) and thus add numerous functions to DONIA Manager.

DONIA version 7.0 allows for the updating of habitat maps and regulations at sea. DONIA is already used by agents at sea as an intervention tool to monitor the nature of the seabed under anchored vessels and to limit anchoring pressure on sensitive marine habitats. In addition, this version 7.0 is equipped with the **new DONIA Mooring module** allowing the reservation of buoys / mooring boxes.

This document presents the operation, the data and the new features available in 2026 in the **DONIA Manager module**.

I. Context

I.A. Posidonia meadows: an incredible ecosystem endemic to the Mediterranean

Posidonia (*Posidonia oceanica* (L.) Delile) is a protected flowering plant that lives only in the Mediterranean Sea (endemic species). In France, the meadows it forms cover 34% of the seabed along the continent and 66% along Corsica between 0 and 40 m depth (DONIA Expert project, MEDTRIX platform). Despite protection measures, **meadows are threatened by human activities** even though they provide us with many goods and services. In the Mediterranean basin, they have lost 10% of their surface area over the last 100 years.

Various studies have quantified the benefits for all ecosystem services provided by this organism. The monetary value of the goods and benefits derived from the services provided by Posidonia meadows has been estimated at between €284 and €1,720,000/ha/year, based on three studies (Campagne *et al.*, 2015; Costanza *et al.,* 1997 ; Vassallo *et al.,* 2013), for which the average is evaluated at €580,928/ha/year, i.e. more than **€46 billion per year for the living meadow (79,852 ha) in France.**

The ecological preferences (shallow and clear waters, weak current, does not support fresh or brackish water) and biological characteristics (very slow growth) of *P. oceanica* make this species very **vulnerable to anthropic pressures** (Boudouresque *et al.,* 2012). Some human activities destroy or fragment meadows in the medium and long term through their impacts on growth and/or survival (Holon *et al.,* 2018; Houngnandan *et al.,* 2020). Others, such as trawling, World War II bombing or anchoring, lead to mechanical destruction of the leaf layer, immediately creating intermatches of bare matte within the seascape (Abadie, 2016).

Among the anthropogenic activities that have an impact, **boat mooring** is responsible for physical damage to Posidonia meadows. To monitor the pressure of anchoring along the French Mediterranean coast, Andromède Océanologie researchers analysed the AIS (automatic identification systems) data of 75,379 anchorages available between 2010 and 2018 (https://medtrix.fr/cahier-de-surveillance-6/; Deter *et al.,* 2017) and showed that the **southern region is the most heavily impacted by anchoring pressure in the French Mediterranean**: it accounts for 80% of the AIS anchorages recorded between 2010 and 2020.

On the basis of these challenges of protecting biodiversity and particularly sensitive habitats in the Mediterranean, as well as France's international and European obligations in the field of the environment, the **framework order of the Maritime Prefect n°123/2019 was drawn up in order to set the general framework for anchoring and stopping vessels in French inland and territorial waters in the Mediterranean**. It aims to organise anchoring on the coast, which is particularly busy during the summer, and to relieve congestion in coastal areas that were previously prone to conflicts of use and accidents. In order to allow for consultation and the taking into account of local specificities, the Maritime Prefect decided to refer the **precise definition of the areas prohibited from anchoring to local decrees** according to the state of conservation of the sea grass beds and the frequency of use of the sites. Around fifteen orders have been signed by the Maritime Prefecture since autumn 2020.

I.B. The DONIA application, an operational tool to protect sensitive marine habitats from anchoring

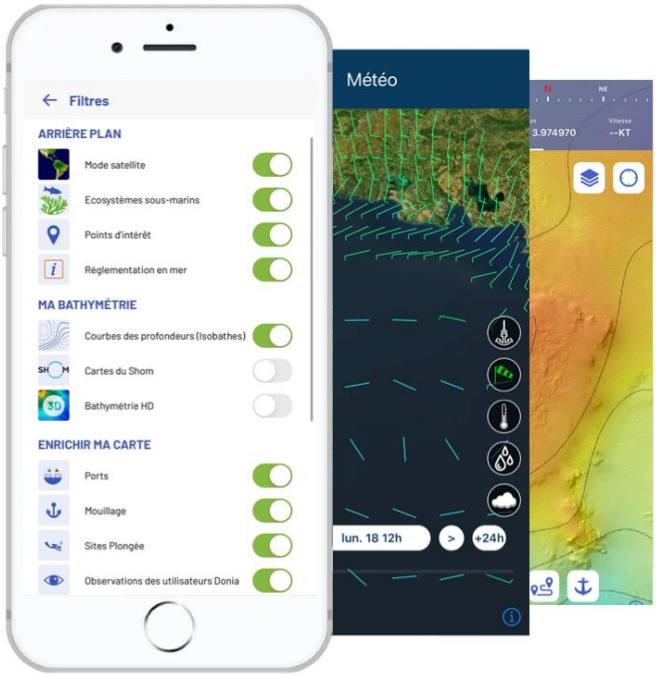
In addition to reinforcing maritime safety, which is increasingly threatened by the proliferation of activities at sea, the creation of areas where large ships are not allowed to anchor takes into consideration the need to protect marine habitats such as Posidonia meadows. An operational tool exists to inform the various users and stakeholders of the marine environment of these regulations: the **DONIA application**.

Created in 2013 by Andromède Océanologie in partnership with the Rhône Méditerranée Corse Water Agency, DONIA currently has **more than 100 000 active users** (as of 2026). It is **a community application for navigation and anchoring assistance outside of fragile ecosystems** such as underwater seagrass beds (posidonia,

cymodocea, eelgrass) and coralligenous reefs. It can be **downloaded free** of charge from the Android and Apple stores, and allows all boaters, fishermen, divers and yacht captains to position themselves in relation to the nature of the seabed and to anchor outside seagrass beds, **in compliance with the law**.

In order to allow a wide use of this mobile application, all the necessary tools for navigation and pleasure at sea are integrated: **high definition bathymetric** charts on rocky spots, **SHOM** (Service Hydrographique et Océanographique de la Marine) charts, real time position of the users of the application, cartography of the biocenoses on which the boats are positioned, isobaths, **atmospheric forecasting model**, **AIS** (Automatic Identification System) positions of the ships coming from the AISHUb network, **Preferred anchorage areas** for safety and environmental responsibility, navigation tools (prediction arrow, waypoints and measurement tools, navigation plots) and **safety at sea** (skid, entanglement and collision alarm pack), information on ports, anchorage and light equipment areas and diving sites, community tools.





Since 2020, the application has had a managers module: DONIA Manager.

II. Access to the DONIA Manager interface

DONIA Manager provides access to a **real time module** and a **historical module**. All you have to do is log on to the home page (https://donia.fr/manager) and enter your login and password (sent by Andromeda Oceanology):



Figure 1 : DONIA Manager homepage (https://donia.fr/manager)

The number of people connected at the same time is not limited. A disconnection is automatically made after 4 hours.

Once connected, the user accesses the home page which corresponds to the **Real Time Module** menu. Three other menus are visible on the top banner: **History Module, My Zones, Messaging.**



Figure 2: Four menus available in the top banner on the DONIA Manager homepage.

II.A. Real Time Module

The **Real Time Module** allows the manager to actively **manage the pleasure craft in real time** by obtaining statistics on small craft (DONIA users) and large craft (AIS data from the AISHub network). The homepage of this module consists of a **map** on the right-hand side and an **insert on statistical data** on the left-hand side.

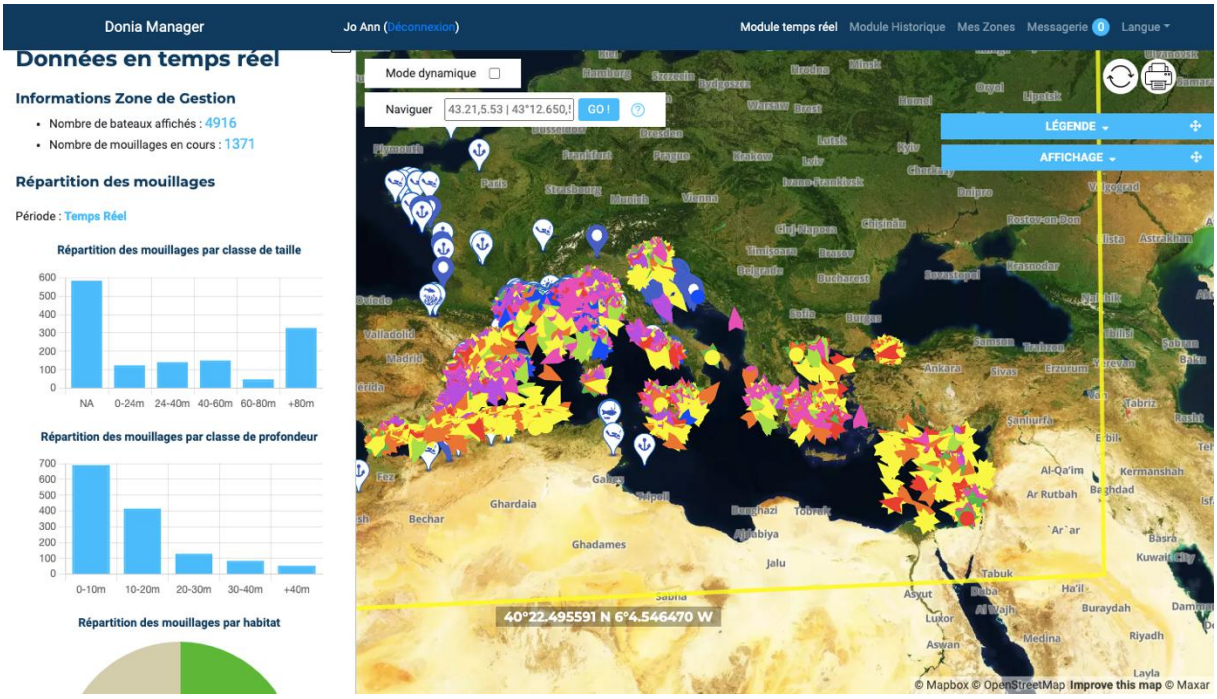


Figure 3: Real Time Module. --

II.A.1. Map

The management area is indicated by a yellow polygon on the Real Time Module map.

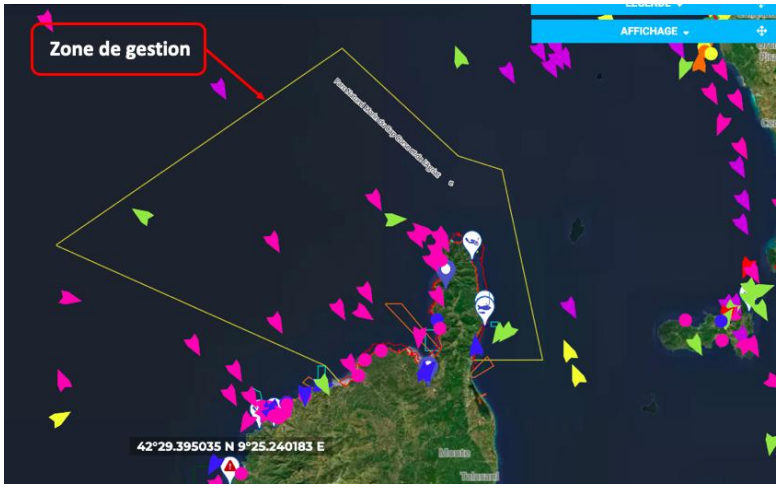
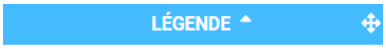
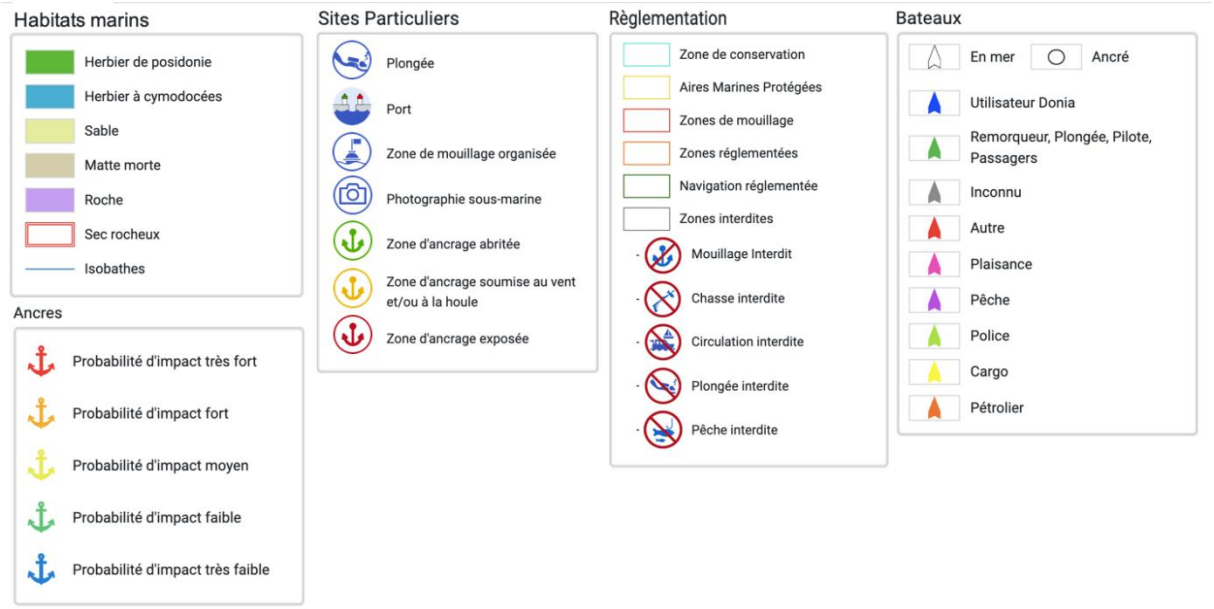


Figure 2 : Real Time Module. The management zone is indicated on the map in yellow (perimeter of the Marine Protected Area, example here in the Cape Corsica and Agriate Marine Natural Park).

II.A.1.a. Key

In the "Key" panel, you will find : 

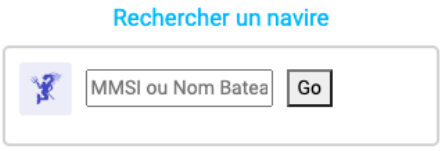
Colour coding of marine habitats, rocky barrens, isobaths, special sites, AIS data, regulations at sea and vessels (donia user, different categories of AIS vessels / at sea or anchored).



II.A.1.b. Display

In the "Display" panel of the Real Time Module, the manager can search for a vessel, access different selection filters and map data. 

Search for a ship



This function allows you to display on the chart a vessel for which you have entered its Name or MMSI.

Selection filters

- Zones: choice of different work zones

- Source: Ais or Donia

"Donia": these are users of the DONIA application who have downloaded the application and created their account. Once registered, the user enters the model of boat (catamaran, sailboat, yacht), user name, personal data (home port, activity) and subscription code number (Premium version) in the "My profile" menu.

« **Ais** : These are vessels equipped with an AIS (Automatic Identification System) and registered by the AISHub network.

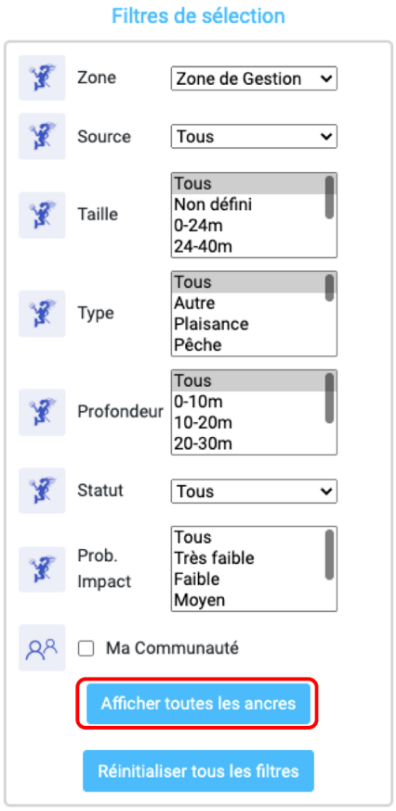
- Size class: choice of several classes (0-20, 20-40, 40-60, 60-80, +80m, not defined)

- Type: choice of different types of AIS vessels

- Status: All/underway/anchored/anchored on sand/anchored on rock/anchored on dead matte/anchored on seagrass/anchored on coralligenous

- Impact probability: choice of different impact classes (=probability of anchoring), from very weak to very strong.

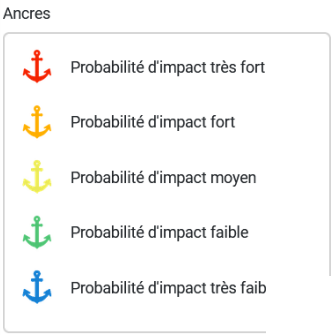
- Community": these are boats from a particular fleet (e.g. MPA officers) and are selected by the manager according to their DONIA licence.



Under the selection filters in the View panel, the user can click on **"Show all anchors"** (or "Hide all anchors"). The user then sees for each anchored boat :

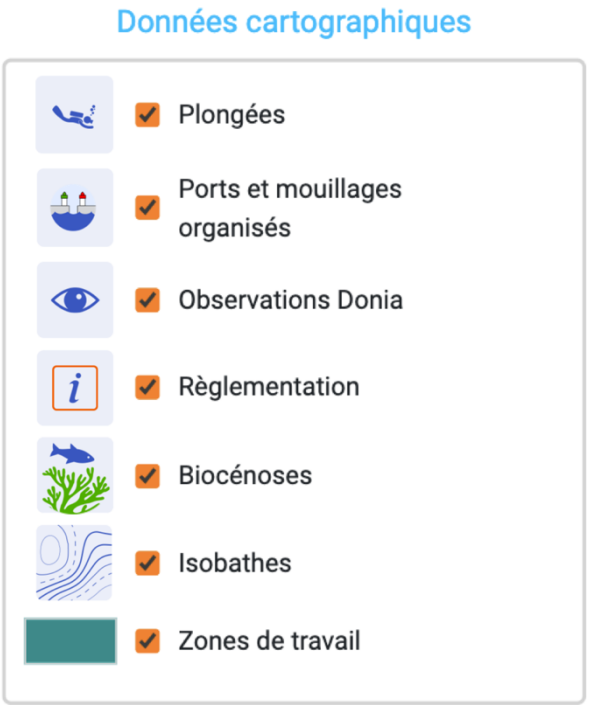
- the precise location of its anchor in relation to the boat.

- the probability of impact of its anchor: red anchor = probability of very strong and risky impact (almost certain impact on the seagrass beds or coralligenous areas), orange anchor = probability of strong impact (very likely impact on the seagrass beds or coralligenous areas), yellow anchor = probability of medium impact (likely impact on the seagrass beds or coralligenous areas), green anchor = probability of low impact (unlikely impact on the seagrass beds or coralligenous areas), blue anchor = probability of very low impact (very unlikely impact on the seagrass beds or coralligenous areas).



Map data

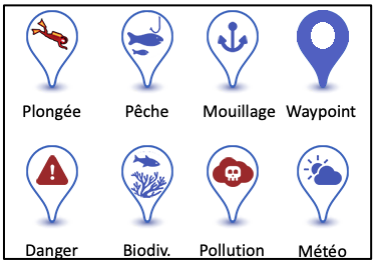
The map data consists of seven filters:



All these data are those displayed in the DONIA application and visible to all users. Only the visibility of the working areas is managed by the manager in the "My Areas" menu.

II.A.1.c. Pop-up

The user can obtain information on all vessels displayed on the Real Time Module map as well as DONIA observations by clicking on them.



Popup Observation DONIA

DONIA Manager provides access to all spots (=DONIA Observations) shared between DONIA users within its management area: diving, fishing, anchoring, waypoint, hazard, biodiversity, pollution and weather (figure opposite).

By clicking on a spot and then on the 'Details' button, he can consult **the photo gallery** and general information on the observation. The user can **deactivate** a spotlight, i.e. make it invisible to other users of the application, but its author retains it.

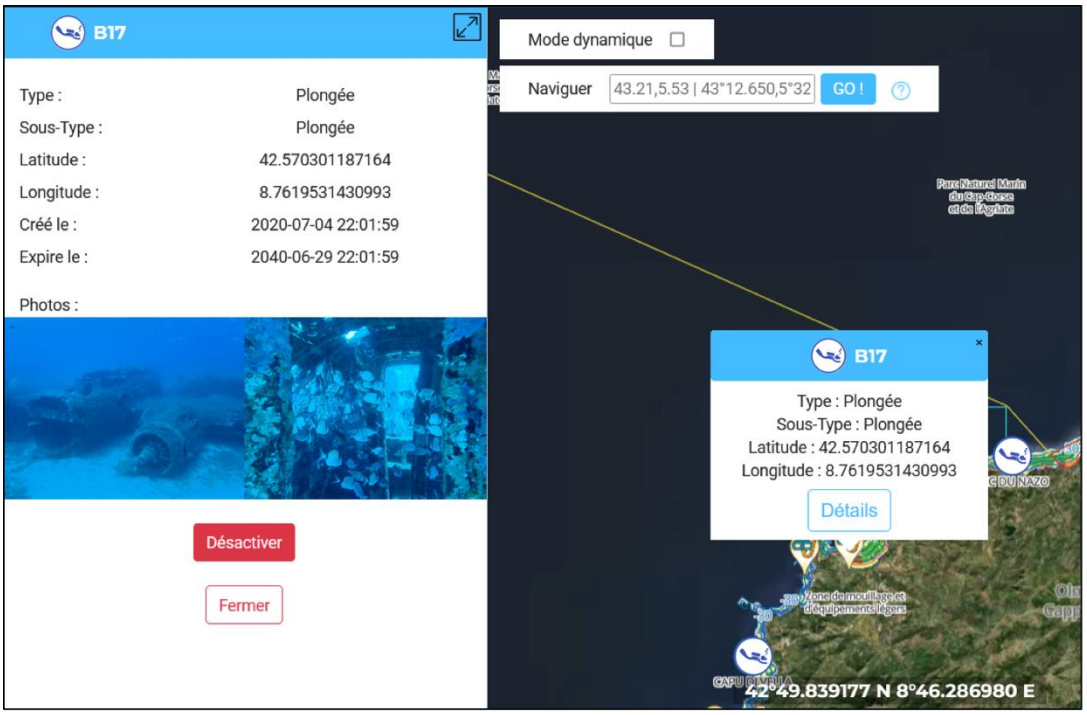
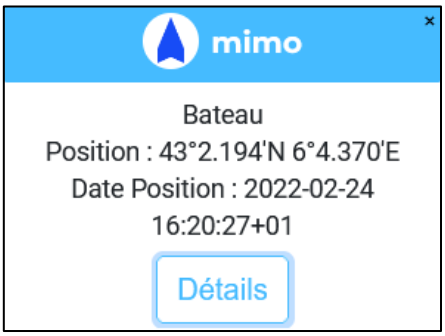


Figure 3 : Popup of a spot (=observation donia).

Popup Boat DONIA

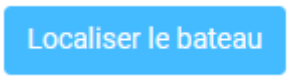


The user can select a vessel on the chart and get the following information by clicking on the 'Details' button:

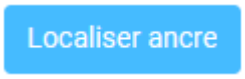
MMSI (AIS vessel) or Code (DONIA vessel)
Type of vessel
Name of the boat
Name of the user
Length
Position
Heading
Speed
Last position
Anchored to
Depth
Anchor time

Probability of impact

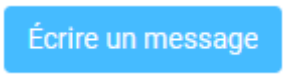
Under this general information the user can find three buttons:



If this button is visible then the boat is navigating. Clicking on it will zoom in on the boat.



If this button is visible then the boat is anchored. Clicking on it will zoom in on the anchor. The colour of the anchor indicates the impact of the mooring.



If this button is visible then the boat is a donia user's boat. By clicking on it the manager can write a private message to it.

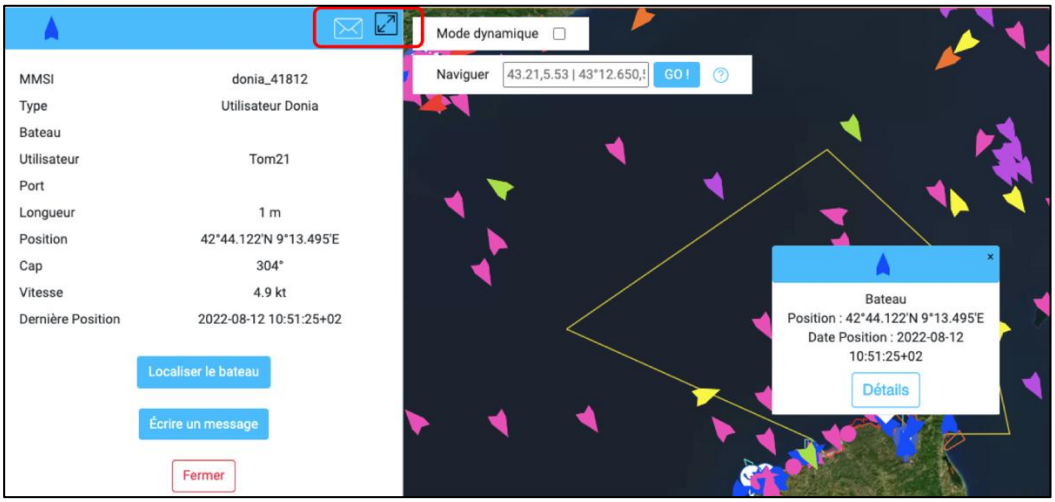
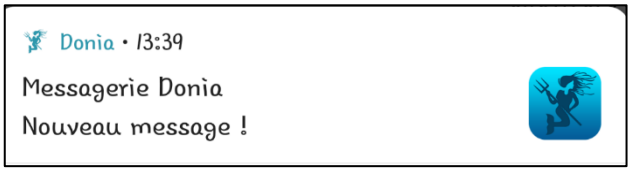


Figure 4 : Popup of a Donia boat that is sailing. It is possible to locate the boat or to write a message to it.

When the user (= manager) writes a message to a DONIA user, the latter receives a notification on his phone or tablet. The manager can follow the conversations in the Messaging menu of the manager module.



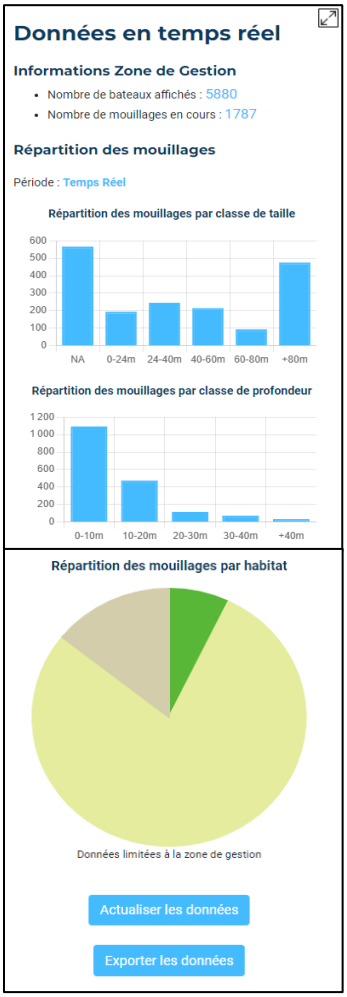
II.A.2. Real time data

The 'Real Time Data' window to the left of the main map in the Real Time Module menu can be linked to the map by checking the 'Dynamic Mode' box:



By default, this mode is deactivated and allows the user to navigate on the map without updating the statistical data and associated graphs. By clicking on the checkbox, the dynamic mode is activated and a dynamic calculation of the statistical data (and graphs) is performed according to the movement of the map.

This Real Time Data insert allows you to :



Know the total number of boats displayed and the number of moorings in progress in its management area or on the map (if dynamic mode is activated).

To know the distribution of the current moorings, and more precisely:

- View the distribution of moorings by size class

- View the distribution of anchorages by depth class

- View the distribution of anchorages by habitat.

The manager can click on a bar of one of the graphs (or habitat category) in order to display the location of the corresponding moorings on the map, but the filters cannot be combined.

Figure 5 : Statistical data and graphics of the Real Time Module.

The Export data button allows you to obtain a .csv file corresponding to the data displayed in the graphs.

II.A.2.a. Navigation function

A navigation bar is present on the map under the "Dynamic mode" window and allows to :



- Search and move (zoom) on the map according to the coordinates given in DD or DMD

- Add a marker at the search location

- Delete a marker by clicking on it

- Add several points.

II.B. Historical module

The history module gives the user access to all information concerning moorings from 2010 to the current month.

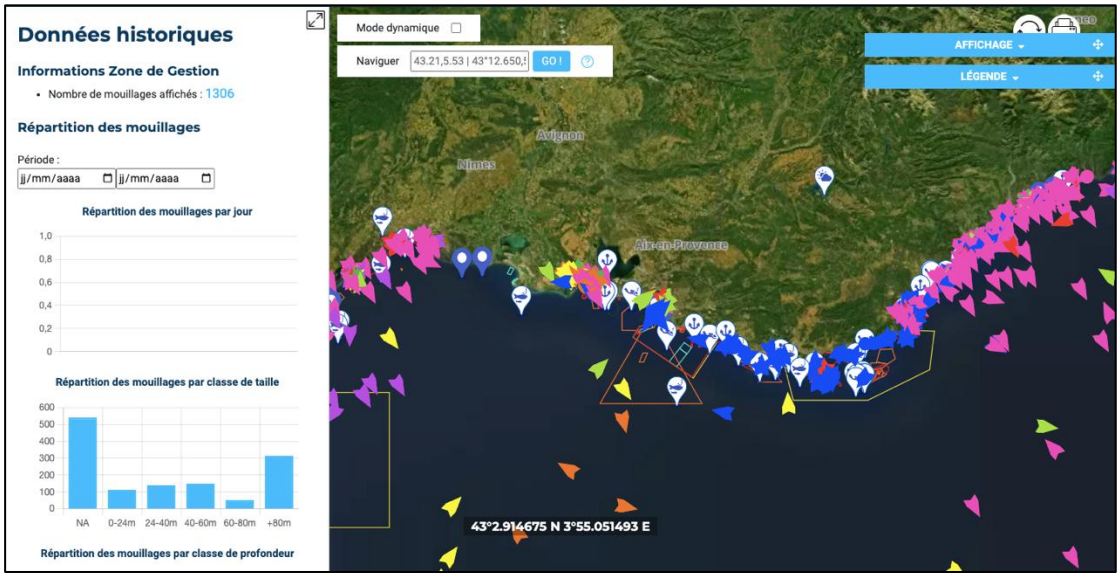


Figure 6 : Historical module

With a visual rendering very similar to the real time module, the history module is also composed of several panels:

- A "Display" panel offering a list of filter criteria (see below), as well as a set of more general cartographic data (as in the real-time module).

- A "Historical Data" panel, which contains statistics and graphs on the selected anchors. This panel can be linked to the map by checking the 'Dynamic mode' box. By default, this mode is deactivated and allows the user to navigate on the map without updating the associated statistics and graphics. By clicking on the checkbox, the dynamic mode is activated and a dynamic calculation of the statistical (and graphical) data is performed according to the movement of the map.

- A map panel in the centre of the page, showing the location of the selected anchors.

- A "Legend" panel, identical to that of the real-time module.

The history module also offers fully dynamic content. The user can filter the data directly on the filter tool, or interactively on the time graph using a cursor or on the map by choosing a zone (work zones already proposed in the real-time manager module).

This Historical Data box allows you to :

- Know the number of moorings displayed in the management area or on the map (if dynamic mode is activated).

- Choose a historical period to know the distribution of moorings by directly noting the dates of the period (Enter button to validate) ;

- To know the distribution of the current moorings.

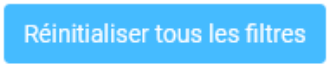
II.B.1. Filter criteria available to the user

A list of filter criteria are offered to the user in the "Display - Filters" tab on the right of the screen:

- Zones (list choice: working zones drawn by the user)
- Source (AIS or DONIA)
- Ship (free name or mmsi)
- Size class (choice of list)
- Type (choose list)
- Period (choose interval)
- Habitat (choose list)
- Depth class (choose list)
- Impact class (choose range)

For example, if the user chooses the filter criteria "Ship" on "Alma 2" and Period from 01/07/2020 to 30/08/2020 (figure 1), then the data mapped, analysed in the graphs, and exportable in .csv format will concern all the anchorages carried out by the ship "Alma 2" during the summer of 2020.

Multiple filters can be selected at the same time from the display panel by holding down the 'Ctrl' key. To reset all filters, simply click the corresponding button:



II.B.2. Indicators available to the user

A list of indicators is proposed to the user in the tab "-Historical data - Distribution of moorings" on the right of the screen:

- Number of moorings per day (curve type graph)
- Number of moorings by size class (bar chart)
- Number of anchorages by depth class (bar chart)
- Number of anchorages by habitat (seagrass, coralligenous, dead mat, rock, sand, other) (sector type graph). This indicator is limited to the French Mediterranean).

Like the Real Time Module, the manager can click on a bar of one of the graphs (or habitat category) to display the location of the corresponding historical moorings on the map. However, the filters cannot be combined from the graphs; to do this, you must go directly to the View / Selection filters menu and use the Ctrl key.

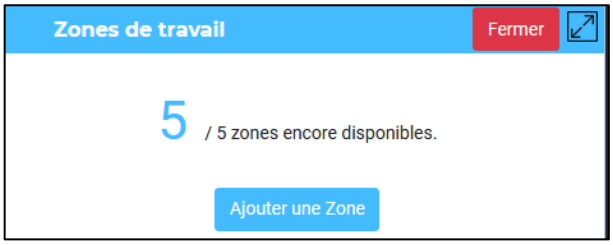
II.B.3. Others features

Once the analysis is complete, the manager will be able to export all the results using the "Download" and "Print" buttons.

- The "Export data" button will produce a table of results in .csv format
- The "Print" button will produce an extraction in .pdf format of the graphs and the map produced

II.C. My Zones

In DONIA Manager, the manager has the possibility to define work areas that are not shown on the application map (therefore not visible to DONIA users) in order to :



- Perform historical queries (Historical Module) in these areas;

- Obtain real-time information (Real Time Module) in these areas;

- Send messages to DONIA users who enter these areas.

This work can be done before the manager module is set up or once it is operational. The manager can save up to five work zones in the "My Zones" menu. The addition of these zones can be done either by manually drawing the zone or by indicating the GPS coordinates to automatically create the zone. Once created, a work area cannot be updated, it must necessarily be deleted and recreated to avoid problems with updates. It is now possible to zoom in on areas already created.



II.C.1. Drawing work area

The working area can be drawn manually using the 'Polygon tool' visible at the top right of the map. To complete the polygon, simply double click on the map. The created polygon can then be moved, modified (add / move a point) or deleted (Delete tool).

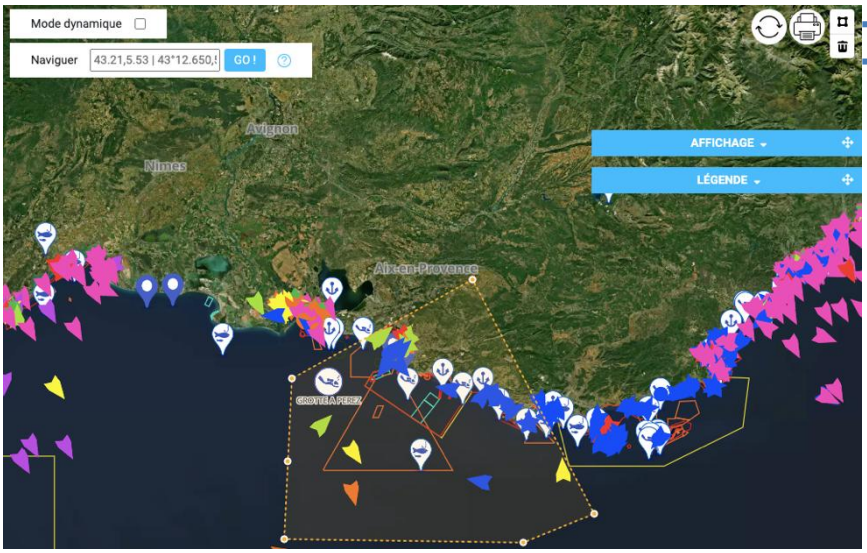
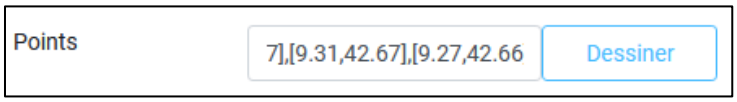


Figure 7 : Draw a working area (here in orange dotted lines).

II.C.2. Creating an area from GPS coordinates

The manager can add GPS points directly in the zone builder :



However, the points of the polygon must be formatted in this format: [[longitude point1, latitude point1], [longitude point2, latitude point2], etc.]. Decimals must be separated by dots and the points entered in the order they are displayed. Exemple : [[9.27,42.71],[9.31,42.7],[9.31,42.67],[9.27,42.66]]

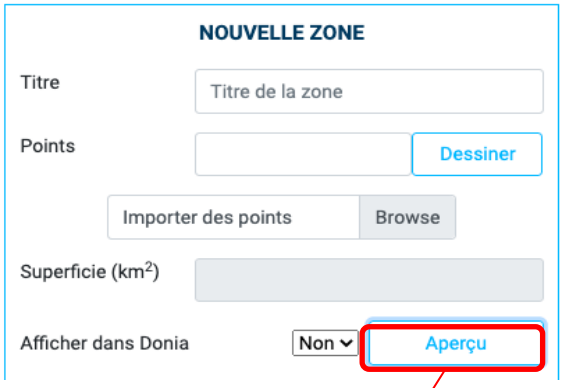
The 'Draw' button allows you to view the polygon and change the points in the frame of reference to modify it.

II.C.3. Information

The following information must be entered once the work area has been drawn: title, visibility (displayed in Donia or not), description.

Not displayed in Donia= area invisible to the users of the application

Displayed in Donia= area visible to all users of the application. This status allows the manager to send to users textual information filled in the fields 'Title' and 'Description of the area' as well as photos (field 'Insert images') that he wishes to share with the users of the application.



It is also possible to see the popup that will be displayed on the DONIA application to users entering the area (for areas that are displayed in DONIA).



If the zone is displayed in DONIA, the DONIA user receives a notification on their phone when they enter the created zone. When the popup appears on their phone or tablet, they have two choices:

1 - Close => The popup closes for 24 hours even if he exits and enters the area again.

2 - Don't show again => The popup will close for 1 month even if he goes out and enters the area again.

Once the information has been filled in, click on the 'Create' button so that the work area exists.

II.C.4. Real time data on a work area

The created work area appears in the map display panel. The 'View' button in the 'My Zones' menu allows the manager to view real-time statistical data for each of his zones.

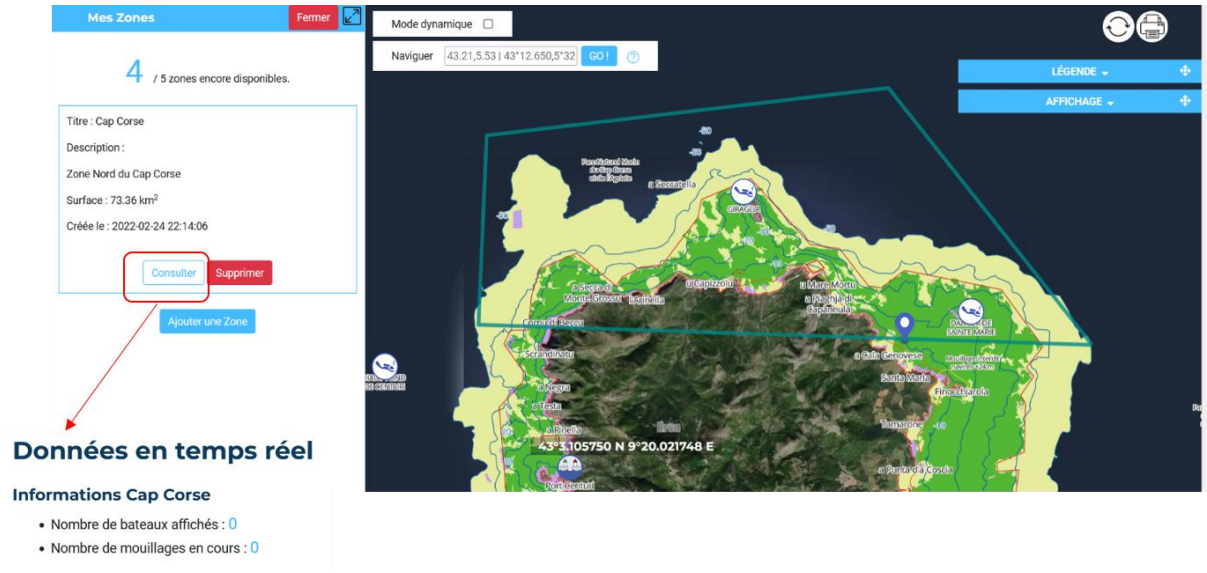


Figure 8 : Real-time statistical data of a work area.

II.D. Messaging

The manager can send a message automatically to DONIA users who enter the perimeter of a working area (see previous paragraph) or of his management area (under development). He can also send messages to a single DONIA user by clicking directly on the boat from the map. Thanks to the Messaging menu, he can follow all the conversations over time. The messaging system is enriched with a feedback for the sender in case of reception and reading of the sent message.

III. Access to raw AIS anchor data

The historical manager module offers the manager the possibility to download the raw anchor data on his management area, from 2010 to today. The downloaded data table will contain the fields shown in the table below.

Champ	Description
mmsi	Ship identifier if ship equipped with AIS
id_donia	Vessel identifier if Donia vessel
lon	Longitude
lat	Latitude
nom	Name of the boat
taille	Size of the boat
classe_taille	Size class
type_brut	Type of vessel
type_txt	Type category
date	Date of mooring
année	Year of mooring
mois	Month of mooring
duree	Duration of the mooring
region	Region
eu_cd	Water body code
nommdo	Water body name
habitat	Detailed habitat
habitat_simp	Simplified habitat
surface	Area of the mooring polygon
surface_her	Impacted seagrass surface
surface_cor	Area of coralligenous impacted
impact	Probability of impact
classe_impact	Impact class
bathymetrie	Bathymetry
classe_bathy	Bathymetric class
source	Source of position data

IV. Supplementary options: Updating of regulatory and mapping data on marine biocenoses, email alerts, and AIS antennas

Spatial data describing the **local regulations** and/or the habitat maps on the maritime area will be updated on demand.

E-mail **alerts may** be set up in relation to these regulations and/or in relation to certain vessels in particular (warning when a vessel with poor anchoring behaviour enters the zone).

If needed, one or more supplementary AIS antennas can be installed to improve the AIS coverage of the area. Their number and location will be discussed with the Donia team.

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