

## NATIONAL REPORT - ITALY

### 1. Hydrographic Office/Service

The Italian Navy Hydrographic Institute (IIM) and is in charge of all the official nautical documentation published in Italy. It performs regular surveys of the Italian coasts and seas - over 550,000 square kilometers of seawaters and more than 7,800 kilometers of coastline – to collect data for nautical publications and charts, both paper and electronic. These products, together with nautical information data diffused nationally and internationally, represent the official documentation required for the safety of navigation by national and international standards.

The COVID-19 pandemic determined an internal renovation of the production process. In this regard, IIM never stopped the production of nautical documentation and maintained the high-level standards of production.

### 2. Surveys

#### a) Coverage of new surveys

In 2020, systematic surveys have been conducted mainly along the Eastern coast of Italy (Adriatic Sea), Sicily and Sardinia Island, Tyrrhenian Sea and inland waters:

- Adriatic Sea: Ancona, Brindisi;
- Sardinia: North-eastern coast;
- Sicily: Capo Passero, Strait of Sicily;
- Tyrrhenian Sea: Elba Island, Pianosa Island, La Spezia;
- Lake of Garda.

#### b) New technologies and /or equipment

- IIM integrated the MBES system installed on board the hydrographic boat with the laser scanner system for terrestrial data acquisition;
- The interferometric multibeam system installed on board the IIM hydrographic R.H.I.B. was updated with the installation of MBES gap filler;

#### c) New ships

- The IIM is supporting the Italian Navy General Staff in the drawing up of technical-operational specifications for a new major and two coastal hydro-oceanographic vessels.

#### d) Problems encountered

Survey activities were carried out regularly in accordance with the cartographic plan.

### 3. New charts and updates

IIM has changed its chart production system based on a product-oriented philosophy to a more suitable data-centric architecture. A remarkable amount of s-44 compliant hydrographic data is provided to the IIM by the port authorities and local competent bodies thanks to the national regulation in place. These data are vital for the updating process of the nautical documentation.

During 2019-2020 the IIM production rate increased significantly thanks to the following factors:

- New employment of 30 cartographers through a National selection;
- Full implementation of CARIS HPD suite;
- Digitalization and dematerialization of the cartographic production process.

**a) ENC**

The status of ENC production in the region is:

<i>Usage Bande</i>	<i>Produced Cells</i>	<i>Planned Cells</i>	<i>%</i>
<b>1</b>	<b>1</b>	<b>1</b>	100
<b>2</b>	<b>2</b>	<b>2</b>	100
<b>3</b>	<b>43</b>	<b>44</b>	98
<b>4</b>	<b>19</b>	<b>23</b>	83
<b>5</b>	<b>57</b>	<b>76</b>	75
<b>6</b>	<b>3</b>	<b>5</b>	60
<b>Total</b>	<b>125</b>	<b>151</b>	<b>83</b>

**b) ENC Distribution method**

Italian cells are distributed through IC-ENC RENC.

In addition, the IIM signed during the year many contracts for ENC's data usage on leisure craft cartographic products.

**c) RNCs**

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**d) INT charts published**

The status of INT charts production in the region is:

<i>Scale</i>	<i>Produced INT charts</i>	<i>Planned INT charts</i>	<i>%</i>
<b>Small</b>	5	5	100
<b>Medium</b>	18	20	90
<b>Large</b>	17	18	95
<b>Total</b>	<b>40</b>	<b>43</b>	<b>93</b>

Since the MBSHC-21 conference the IIM completed the INT scheme of the Adriatic Sea (medium scale charts) and the overall scheme is almost complete (3 INT charts left already schemed).

In the next 3 years, it is expected the co-production with Tunisia of the INT chart 3212.

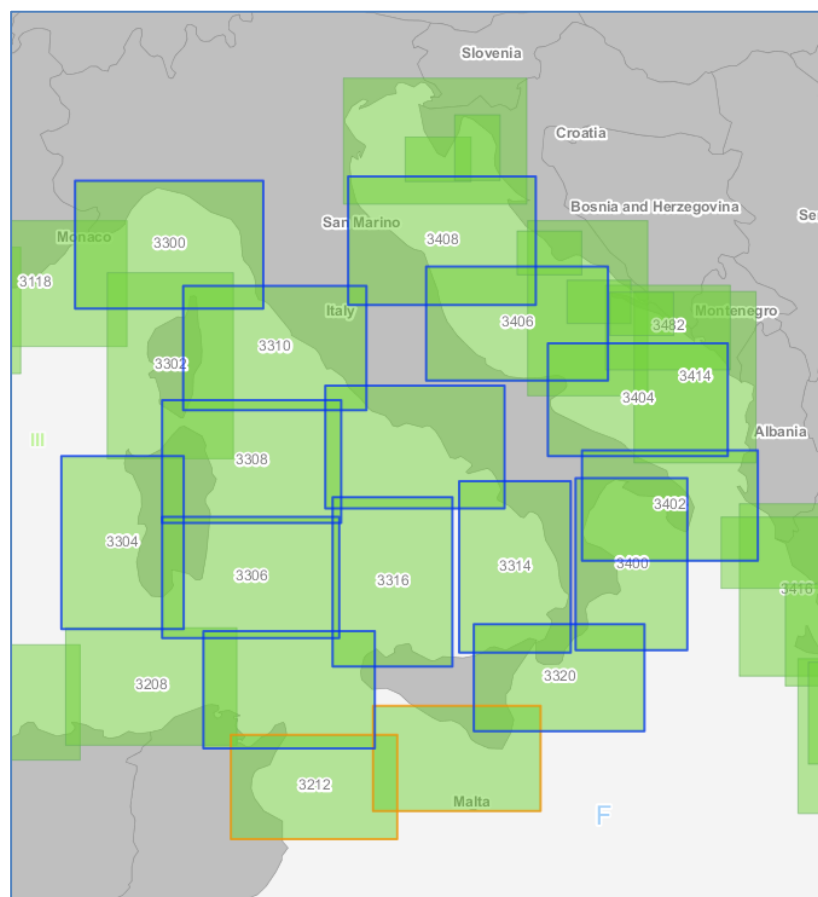


Figure 1 – Completed medium scheme INT Charts scheme

– **INT Charts published:**

<i>INT n.</i>	<i>National n.</i>	<i>Title</i>	<i>N.E/N.C.</i>
<b>2019</b>			
3387	96	Rada di Salerno	NE
3370	76	Porto di Civitavecchia	NE
3461	193	Porto di Bari	NE
3357	53	Porto di Savona -Vado	NE
3364	115	Litorale della Spezia	NE
<b>2020</b>			
3312	914	Da Fiumicino a Punta Licosa	NE
3314	915	Da Punta Licosa a Capo D'Orlando ed Isole Eolie	NE
3304	921	Da Torre Canne a Vieste	NE
3352	138	Stretto di Messina	NE
3402	920	Da Punta Alice a Torre Canne e Canale d'Otranto	NE
3386	120	Litorale di Livorno	NE
3316	916	Da Cefalù a Trapani e Isole Egadi	NE
3393	274	Litorale di Catania	NE
3400	919	Da Punta Stilo a Capo S. Maria di Leuca	NE
<b>2021</b>			
3468	239	Litorale di Trieste	NE
3376	299	Litorale di Cagliari	NE
54	3361	Porto di Genova - Foglio Ovest	NE
55	3362	Porto di Genova - Foglio Est	NE

e) **National paper charts production**

Since the 21<sup>st</sup> conference the following National Charts have been produced:

	<b>2019</b>	<b>2020</b>	<b>2021</b>
<b>New Charts</b>	3	2	0
<b>New Editions</b>	12	22	8
<b>New Limited Editions</b>	32	46	12
<b>NC+NE+NLE</b>	47	70	20

**f) Problems encountered**

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**4. New publications & updates**

Italy is completing the testing phase for the production of the NtM Booklet through CARIS Software suite. The production will start by the end of the year.

The publication “List of Lights and Radio Signals” is going to be produced with CARIS Publication module software thanks to the full implementation of the database-oriented infrastructure. The New Edition is expected in 2021.

IIM has almost completed the project to automatize the Sailing Directions (“Portolano del Mediterraneo”) in order to obtain an interactive and modern product. In the near future, the sailing direction publication will be database based and delivered in digital format (e-book).

**a) Updated publications**

Publications are updated via the NtM (*Fascicolo Avvisi ai Naviganti*) booklet which can also be downloaded free of charge from the IIM section in the Italian Navy official website.

**b) Means of delivery, e.g. paper, digital**

All publications are available on paper. Italy is working on the Digital Sailing Directions project that has completed the testing phase in 2020.

**c) Problems encountered**

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**5. MSI**

**a) Existing infrastructure for transmission**

In accordance with National jurisdiction, the Coast Guard is the Italian entity in charge of GMDSS and Navtex Coordinator.

**b) New infrastructure in accordance with GMDSS**

N.A.

**c) Master Plan**

N.A.

**d) Problems encountered**

NTR.

**6. S-55**

**a) Latest update (March 2020)**

<i>Nation/Area</i>	<i>A1</i>	<i>A2</i>	<i>B1</i>	<i>B2</i>	<i>C1</i>	<i>C2</i>
ITALY	74%	55%	23%	44%	3%	1%

## 7. Capacity Building

### a) Offer of and/or demand for Capacity Building

- Lebanon: the project is part of the UN “International Support Group” initiative for the country stabilization. It started in 2014 as a multinational program, led by IIM and financed by Italian Ministry of Defense and it is in the 5<sup>th</sup> year of development. The project led to the signature technical agreement in the field of hydrography and cartography (July 2020) and a cartographic co-production annex (April 2021). The Lebanese Navy Hydrographic Service (2014) is now capable to perform hydrographic surveys thanks to the hydrographic boat “navigator” provided by Italy and it will start soon the production of its first cartographic plan.
- Albania: capacity building activity is focused on cartography ( next activity Autumn 2021 – cartographic training) and a joint survey activity is going to be scheduled in the future in order to share expertise in the field of hydrography and oceanography.
- Monetegro: capacity building activity is focused on hydrography. The joint survey scheduled in August 2020 was cancelled due to COVID and will be rescheduled in the future.
- Tunisia: capacity building activity is focused on cartography. Meetings are organized every year for the co-production of INT chart 3212
- Qatar: the project is part of the cooperation activity between the IT Navy and the Qatar Emiry Force. Qatar personnel is studying at the IIM. A technical agreement in the field of hydrography and cartography was signed in 2020.

### b) Training received, needed, offered

IIM offers training courses for hydrographers as follows (all courses are held in English):

- Category A course: Master Degree in Hydrography and Oceanography for military and civilian personnel, managed by IIM and the University of Genova; the next course will start in October 2021;
- Category B course recognized by the FIG/IHO/ICA IBSC: open to military and civilian personnel; the next course will start in January 2021.
- Tailored Hydrographic/Cartographic trainings organized on specific modules and on demand.

### c) Status of national, bilateral, multilateral or regional Development projects with hydrographic component (In progress, planned, under evaluation or study)

- i. Hydrographic/Cartographic data exchange agreements in force:

#### Tunisia:

The agreement was stipulated in 2009 and concerns on data exchange and technical assistance in the fields of hydrography, oceanography, cartography and education.

#### Croatia:

A bilateral agreement in the field of hydrography, nautical documentation and maritime safety information between HHI and IIM is in progress. The agreement is

focused on charts co-production (other positive example of cartographic cooperation between Mediterranean border countries) and overlaps solving.

ii. Hydrographic/Cartographic cooperation in force:

Lebanon:

A strong bilateral cooperation is in force in order to create an independent Hydrographic Service in Lebanon.

iii. Visit to the Italian Hydrographic Institute for hydrographic/cartographic purposes:

2019

Japan, USA, NGA, Montenegro, Lebanon, Tunisia, Qatar, Malta, Indonesia, Pakistan, Spain, Ukraine, Korea, Chile

2020

Croatia, Qatar, Lebanon, Tunisia,

2021

Lebanon

**d) Development projects with hydrographic component (In progress, planned, under evaluation or study)**

NTR.

**8. Oceanographic activities**

**a) General**

The IIM provides meteo-oceanographic support to the Italian Navy through a METOC service, carried out in the Marine Geophysics and Oceanography Department. The MetOc Office manages an operation-support service and includes a Metoc and REP-REA section and a Forecast Section.

In order to guarantee, an adequate and continuous support to the units of the Naval Team and to the National and NATO operations, in area and out of area, the Marine Geophysics and Oceanography Department, assures the fruition of the service "support METOC" in mode 7-24h, through the page dedicated to oceanographic weather support. When necessary it can organize an Operational Unit for direct support to Naval Operations.

Of special relevance for Nato IMetoc support to "Dynamic Manta 2020" and for the MetOc support to different Operation like "Sophia" "Iriini" "Atalanta", and Sea Guardian operation in the role of IMETOC Assisting Nation through the provision of marine current forecasts and vertical sound velocity profiles at IMETOC LN OSG (DEU). The IIM provided oceanographic (OC) support in cooperation with COMET, the Air Force Operational Centre for Meteorology.

The IIM can provide high resolution sea-state in shallow water information, using the SWAN mathematical model, and current circulation information and products, in specific areas, using the DHI Mike3 mathematical model, for specific study or forecast purposes.

For the OC products and forecast, IIM often cooperates with national Research Centers, Universities and Institutions; in particular, IIM is involved in the Italian Oceanographic Commission (COI). COI is a group composed by several Military and Civilian entities and institutes operating within the Italian METOC context.

IIM provides personnel to the Military Oceanography Panel of the NATO MCWG (METOC).

The IIM carries out scientific surveys and studies on oceanography, geophysics, and marine environment: The Arctic Campaign of the Navy also in 2020 was characterized by the implementation of a multidisciplinary and integrated action of the High North program. In particular, the activity in the area has been characterized by the acoustic mapping of the

seabed and by the sampling of environmental data, water-sampling sites, seabed sampling site, measurements of the physical and bio-geochemical parameters of the water column, sampling sites of ice, sampling sections of macro, micro-nano plastics, finding fragments of variable measurement. During the navigation were also acquired weather data (wind intensity, wave motion, atmospheric pressure, precipitation, temperature and humidity of the air, intensity of solar radiation) for the refinement of weather forecasting models. The Navy continues its engagement in the Arctic region, in order to consolidate and further develop the results of scientific research, contributing to the continuity of monitoring and research aimed at the study of climate change in areas of particular interest such as the Arctic, a key sector to understand the evolution of climate and its impact on the planet and the global economy.

In addition, IIM took part to the following activities: the SWIM-LIG20. The purpose of the oceanographic campaigns "Summer and Winter Intensive Monitoring of the Ligurian Sea" (SWIM-LIG), which began in the summer of 2018, is to monitor the thermal content of the Ligurian Sea, during the peak in summer and the minimum in winter, to obtain valuable information about its evolution and to be able to validate and refine the oceanographic model of the Ligurian Sea implemented at IIM. The data obtained are also used for the identification of the main water masses present in the Ligurian Sea and coming from other areas of the Mediterranean and the Atlantic such as Levantine Intermediate Water (LIW), Modified Atlantic water (MAW) and Transitional Mediterranean Water (TDW).

The marine geology campaign carried out at Lake Garda has contributed to the achievement of a double objective. The first closely linked to the geological conformation of the lake, the second, however, connected to the development and integration of the experimentation of semiautomatic analysis of the acoustic reflectivity of the seabed (acoustic backscatter).

Moreover, surveys were carried out from hydrographic vessels (Aretusa and Magnaghi), fitted with oceanographic data collection equipment, such as CTD, XBT, Sub Bottom Profiler, Rosette system, single beam echo-sounder, multi beam echo-sounder, current meters, Side Scan Sonar, ADCP, Sea Bottom Sampler.

**b) GEBCO/IBC's activities**

Italy enthusiastically supports GEBCO's activities and has always contributed to them, especially this last two years with the Arctic dataset.

**c) Tide gauge network (five stations)**

The IIM ensures the annual production and distribution of the 'IHO' periodical (annual) publication "Tide Tables" (I.I. 3133). The collection, validation and processing of data was performed from the IIM tidal network, consisting of the stations of Genoa (radar and floating sensor), Brindisi (radar and floating sensor), Gioia Tauro ( radar sensor) Maddalena (radar sensor), Augusta (radar sensor).

**d) New equipment**

NTR.

**e) Problems encountered**

NTR.

**9. Other activities**

**a) Participation in IHO Working Groups**

IIM participate is strongly involved in IHO activities. It has representatives in almost all IHO WGs/PTs: WENDWG, HCA, HSPT,GEBCO, SCUFN, DQWG, NCWG, NIPWG, S-100 WG, ECNWG, IENWG, ABLOS, IRCC, CBSC, CSBWG and TWCWG and it has the

vice-chairmanship of the CSBWG.

In addition, IIM Director was of two relevant bodies: HSSC and MBSHC.

Within the MBSHC IIM is covers the following roles:

- Crowd-source bathymetry WG Vice-Chair (until April 2021)
- International Charting Coordinator;
- CSB/Seabed 2030 Coordinator;
- MSDI Ambassador.

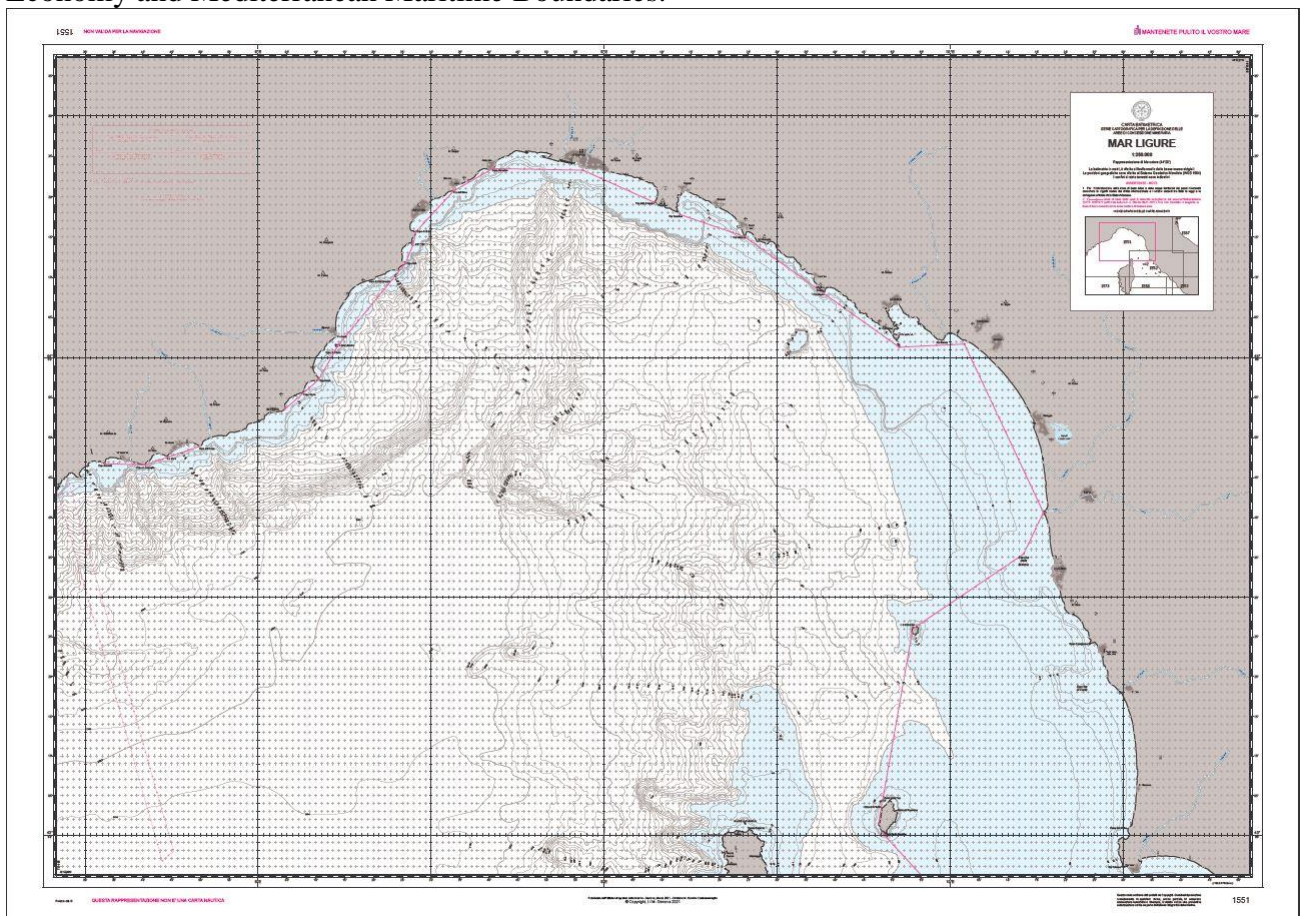
IIM benefit from this active involvement at IHO level: new procedures are established and testing activities and dialogues drive the change into a more and more modern and efficient productive structure.

**b) Meteorological data collection**

Meteorological data are collected by survey vessels during hydrographic and oceanographic surveys, and at synoptic times during transfer navigation to operational areas.

**c) Geospatial studies**

A study and production of tailored maps for the Italian Ministry of Economic Development and Ministry of Foreign Affairs and International Cooperation in support of the National Economy and Mediterranean Maritime Boundaries.



**d) Disaster prevention**

The IIM cooperates with National authorities on disaster prevention, providing technical support.



**e) Environmental protection**

The IIM in cooperation with other National organizations is responsible for the collection of mammal observation data in order to update the existed database.

**f) Astronomical observations**

N.A.

**g) Magnetic/Gravity surveys**

Magnetic data are eventually collected by survey vessels during specific campaigns in cooperation with national scientific institutes and centers.

**h) International**

N.A.

**i) National status of MSDI**

At the following link it is possible to find the Italian *National SDI*:

<http://www.pcn.minambiente.it/mattm/en/>

The *National SDI* is the national point of access for the purposes of the INSPIRE EU Directive (establishing an Infrastructure for spatial information in the EU) where the available spatial information are open to authorities and stakeholders. It is operated by the Ministry of the Environment and Land and Sea Protection. IIM contributes to the *National SDI* sharing its data.

**j) ENC overlapping issues**

Italy is fully committed in the resolution of ENCs overlapping issues and has engaged with many neighbor countries. In particular, overlaps were solved through bilateral agreement with Slovenia, Croatia, Tunisia and Greece.

As regards ENC overlapping issues, which are in the top priority list of Italian interests, Italy and Croatia are working on a common agreed solution in the Adriatic Sea for small scale charts.

Since MBSHC21 more than 30 overlaps were solved.

**k) Risk assessment of national overlapping issues**

Risk assessment is carried out in accordance with Resolution 1/2008.

## **10. Conclusions**

Italy confirms that cooperation in the Mediterranean area still remains the priority for all the countries involved. MBSHC is the forum in which and through which this cooperation can be achieved. In addition, a new phase in capacity building should be considered in this area.

Italy is prepared to work hard with all its Mediterranean partners, to promote cooperation through bilateral or multilateral agreements and share experience and know how.