

NAUTICAL CHARTS OF THE BRAZILIAN COAST FOR SMALL CRAFT

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Abstract

Brazil, a country of continental dimensions, with a coastline of approximately 4,000 nautical miles in length, which includes numerous beaches and bays of considerable natural beauty, is ideally suited for small craft navigation.

According to a recent survey, the total number of small craft registered in Brazil is around 30,000, involving over 100,000 people, which, for a developing country, is a large number. This great number of users justifies the preoccupation of the Directorate of Hydrography and Navigation (DHN) regarding the safety of yachtsmen and the consequent production of special nautical charts.

Since 1988, the Directorate has been promoting an annual Seminar on Safety of Navigation, in which a working group, composed of representatives from yachting and naval organizations has dedicated itself exclusively to this activity.

Due to the stated requirements of the users for a cartographic document suitable for use within the limited space of small craft, DHN, based on proposals presented by the working group, has made a contract with a Brazilian private company for the production of these charts.

This paper describes the production of such charts, from the planning phase and data collection to their acceptance by DHN as cartographic documents, intended for small craft navigation.

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INTRODUCTION

The Directorate of Hydrography and Navigation (DHN) has, as one of its missions, the production and updating of nautical charts for the safety of navigation. The great length and peculiarities of the Brazilian coastline, with its great variety of harbours, bays and terminals, as well as innumerable navigable rivers and lagoons, requires that DHN the issue widely different kinds of charts. These include those intended for international shipping, coastal navigation, inland water navigation and those of approaches, details and many others. The overall aim is always to ensure the safety of navigation in waters under Brazilian jurisdiction.

In addition to commercial navigation, Brazil, with its numerous beautiful beaches and inlets, is an ideal territory, throughout the year, for small craft navigation. This fact made DHN feel the need to publish one more type of nautical chart, one that could best suit the needs of yachtsmen, since standard nautical charts do not always contain characteristics that are necessary for the safety of small craft navigation.

As early as the 1960s, DHN showed an interest in developing yachting charts. From an article titled "Development of the U.S. Coast and Geodetic Survey Small Craft Charts", authored by the U.S. Coast and Geodetic Survey civil engineer James F. RICHARDSON, published in the early 1960s, DHN set out its first studies, coming to the conclusion that the time was not yet ripe to publish such charts, as the number of yachtsmen existing in the country was at that time still too small.

At the XIth International Hydrographic Conference, held in 1977, the Brazilian delegation paid particular attention to a presentation by Rear Admiral HASLAM referring to small craft charts. Rear Admiral HASLAM, at the time, Hydrographer of the United Kingdom Hydrographic Office, pointed out that the number of yachtsmen, at that time, was already larger than any other class of chart users, and that this trend could be expected to increase. DHN was requested by Mr. A.J. KERR, at the time, Regional Hydrographer of the Canadian Hydrographic Service, to provide some copies of the small craft charts that it issued. These would be used in studies that the Canadian Hydrographic Service was then developing for publishing this type of nautical chart. At that time, DHN had not issued any small craft charts, but studies were underway, particularly research in nautical clubs and touristic agencies, in order to better assess the advantages of publishing such charts.

As Brazil developed, an increase occurred in marine recreational activities. The growing number of users boosted the nautical industry. Sailing boats, motor launches, and equipment used by them started being produced on a commercial scale. Marinas, nautical clubs, recreational sites and service shops started opening up everywhere along the coast. In accordance with data available in the Directorate of Harbours and Coasts, the present number of small crafts registered in Brazil is 30,000, involving close to 100,000 users. For a developing country, this is a significant number and supports DHN's concern for the safety of small craft navigation.

From the 1980s onwards, based on the already great number of small craft users, DHN re-visited the subject. Since 1988, DHN has been promoting, annually, "The Seminar on Safety of Navigation", an event where representatives of several organizations linked to navigational activities meet to discuss measures needed to improve the navigation products and services of the Directorate.

The Working Group on Sport and Leisure Navigation and Fishing meets regularly at this seminar, to present and discuss specific topics of its sphere of activities. As a result of proposals emanating from this group, DHN has created the necessary conditions for publishing small craft charts of the coast of Brazil. The first and most important measure taken to this end refers to the approval, by DHN, of charts for small craft produced by other institutions.

DHN is committed to editing and updating its series of standard nautical charts for the safety of commercial navigation, an activity which consumes most of its resources. Today, it is also engaged in the development of special nautical charts and databases, indispensable for the support of modern naval operations. Besides this, it is also involved with the Electronic Chart. For all of the above, it was felt, taking into account the present stage of development of the country, where a considerable number of charting agencies already exists, capable of carrying out high quality work, that the possibility of production of small craft charts would lie in the private industry.

As a result of the proposal submitted by the Working Group on Sport and Leisure Navigation and Fishing at the Second Seminar on Safety of Navigation, as well as the policy adopted by the Government to create a free-market economy, a ministerial decree was issued in 1990 authorizing the publication and sale of small craft charts by national private or public agencies in conjunction with DHN. To the latter fell the responsibility of establishing the specifications and approval of the final product.

In 1991, a national private company providing charting services showed interest in publishing and selling small craft charts. That year, this company signed up with DHN for the publication and sale of SPORTCART, a trade mark for the small chart of the company. At the beginning of 1992, it published a series of eight SPORTCARTs, covering the area of Baía da Ilha Grande. This is located at the southernmost point of the coast of Rio de Janeiro, one of the most delightful sites in Brazil for nautical recreational activities and known as "The Green Coast".

PROJECT

The proposals presented by the Working Group on Sport and Leisure Navigation and Fishing at the Third Seminar on Safety of Navigation were the following:

- construction of nautical charts with approximate dimensions of 40 x 60 cm, covering, in principle, the section Búzios to São Sebastião (Southeast Coast of Brazil), presented in the following forms:

- One or two charts at approximate scale 1:300,000; and
- Several charts providing greater detail at approximate scale 1:40,000 for the above section.

From such proposals, the SPORTCART project was developed, covering the Baía da Ilha Grande area contained in the section proposed by the working group, consisting of the following charts:

- One general chart, at scale 1:350,000, covering Ponta de Guaratiba to Ilha de São Sebastião (another SPORTCART has already been projected, at the same scale, covering the section Búzios to Ponta de Guaratiba);
- One chart of approaches, at scale 1:100,000, covering the whole Ilha Grande area; and
- Six charts of details, at scale 1:50,000, covering all Baía de Ilha Grande, from Mangaratiba city to Parati city, including also Ilha Grande.

In addition to those SPORTCARTs, one touristic chart, at scale 1:150,000 and one chart of main symbols and abbreviations have been constructed.

All SPORTCARTs, regardless of the scale, including the touristic chart and that of symbols and abbreviations have standard dimensions 40 x 60 cm.

SPECIFICATIONS

Given the pioneering nature of the subject, proper specifications for construction of small craft charts were not available in Brazil. Accordingly, in order to improve its own specifications, DHN requested from the Hydrographic Offices of IHO's member states some copies of the small craft charts which they issue.

Based on those charts, kindly provided by the Hydrographic Services contacted, and on proposals from Working Groups participating in the Seminars on Safety of Navigation, DHN developed the specifications for the construction of the SPORTCARTs. These specifications are, in short, the following:

- SPORTCARTs should be constructed taking account the publication MP-004 - "Chart Specifications of the IHO and Regulations of the IHO for International (INT) Charts".
- A set of supplementary symbols should be developed in addition to those contained in section IU of chart INT 1, so that features of particular interest to small craft navigation as well as related services can be represented.

As defined, SPORTCARTs were constructed under IHO Chart Specifications, and additional symbology, developed to represent features and services specific to small craft navigation, had as a basis that appearing in chart INT 1, published by the

Deutsches Hydrographisches Institut (DHI). As consequence a of the proposal made by the Working Group on Sport and Leisure Navigation and Fishing of the Fourth Seminar on Safety of Navigation, the call signs and the frequencies of the most important neighbouring coastal stations were inserted in the charts. The table of facilities of marinas appearing in chart INT 1 was also used, printed on the back of the general chart (scale 1:350,000).

Due to the reduced size of the charts, additional information, such as caution notes and conversion scales, was distributed alongside the margins, so as not to obscure the usable area of the chart.

The relief shading technique was also used, providing a clearer and eye-catching presentation.

In order to furnish the necessary guidelines to Mariners, as to the symbology adopted, mainly that referring to small craft navigation, a chart was constructed containing the symbols and abbreviations used, including colours and periods of lights and navigational marks. This chart was based on the small-format symbol and abbreviation chart published by the Deutsches Hydrographisches Institut (DHI).

APPROVAL

The terms for the approval of the SPORTCARTs were established under a contract signed by DHN and the agency concerned.

To the agency was given the right to construct the SPORTCARTs and the obligation of forwarding the colour proofs, accompanied by the respective reports of construction, to DHN for evaluation.

Each colour proof received was submitted to the procedures for approval of charts by DHN, that is, it went from division to division through the whole Hydrographic Department for revision and then was returned, so that corrections indicated on the originals could be made. After printing, the agency sent ten copies of each SPORTCART to be incorporated in the collection of published charts of the DHN.

The production of each SPORTCART, as per contract, was taken into effect by a special permanent notice, published in the fortnightly edition of DHN Notices to Mariners; SPORTCARTs were then characterized as cartographic documents which might replace standard nautical charts in small craft navigation. A note informing of the production and including the number of the notice appeared on each SPORTCART.

Also, as established in the contract, the SPORTCARTs will be updated from Notices to Mariners, falling to the agency the task of forwarding to DHN the corrective information affecting each SPORTCART.

CONCLUSION

During the Fourth Seminar on Safety of Navigation, colour proofs of two SPORTCARTS, now published, were presented. The Working Group on Sport and Leisure Navigation and Fishing found the charts excellently constructed in accordance to its proposals. The SPORTCART has appeared to fill a gap in the DHN production of nautical charts.