

**TECHNICAL WORKSHOP**  
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**General guidelines for the development of  
hydrographic surveying and nautical charting capabilities**  
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The main objective is to provide the mariners with geographical and statutory information to ensure the safety of navigation. The basic support is the nautical chart, a thematic document (on paper or electronic medium) depicting the topography of the seafloor, especially elements which may hinder navigation (shoals, wrecks, etc.), land features useful to mariners (shore line, landmarks, main summits), coastal infrastructures (ports, buoyage), environmental data (tides and tidal streams) and information pertaining to international or national regulations (traffic separation schemes, restricted areas, anchorage zones, maritime boundaries, etc.). Nautical charts are supplemented with publications containing more detailed information on some aspects (Sailing Directions, Lists of Lights, Lists of Radio Signals, Tide Tables, Tidal Streams Atlases, etc.).

All documents should be continuously updated by using means adapted to the urgency of the information to be circulated and to the extent of the area in which mariners might be concerned.

Ideally, every Maritime State should be responsible for charting its maritime areas as well as for the circulation of the relevant nautical information. In fact, many States do not yet have the appropriate structures and organization required to handle this task. For historical reasons, some countries (notably : France, Portugal, Spain, UK and USA) have continued to play this role on behalf of the international community for territories which are now independent. This means that they continue to maintain a portfolio of nautical documents which are still the only reference available. Most Hydrographic Offices coordinate their activities within the framework of the International Hydrographic Organization (IHO).

When the source data from which the charts are derived are not too ancient - which is far from being the case everywhere - this core of information may be still sufficient for the knowledge of physical navigation conditions. Then, the role of the charting authority is to collect all the information on any modifications (installation of new buoyage, new port facilities, new or newly discovered wrecks, changes in the characteristics of a light or radiocommunication service) and to distribute them to all the mariners in the area (foreign or native, professional or recreational boaters) according to procedures agreed at the international level (International Maritime Organization and IHO) and adapted to the urgency of the information. The existence of a national body empowered to collect the relevant information and to forward them to the authority which can handle international distribution is therefore essential.

The preparation of a new chart or the revision of a chart based on inadequate or old data requires to carry out new surveys. These surveys should provide a description of the seafloor topography adapted to the main purpose of nautical charts (e. g. safety of navigation). Due to the heavy equipments involved in surveying, it is desirable to take into account the requirements of other

users in order to constitute a database useful for all projects related to the management of maritime areas : coastal management, exploitation of natural and living resources, monitoring of the environment, determination of maritime boundaries, etc.

The main Hydrographic Offices have the full capabilities required for nautical charting, management of nautical information and hydrographic surveying. Although these three domains are interdependent, they can be considered separately. Therefore, a national capacity can be developed in successive phases, relying on existing organizations in other countries (historical charting authorities, world-wide navigational warning service).

The first phase, the most urgent and the easiest to implement, consists of organizing the collection and the circulation of nautical information, necessary to maintain existing charts and publications up to date. Such an organization brings together on a well defined theme all the institutions involved in maritime activities. It provides an immediate advantage to international shipping and allows for real integration of the country into the world-wide navigational warning service.

Logically, the second phase is the creation of a surveying capability, first to intervene in the coastal area where the needs are usually very pressing. Generally, a small structure is sufficient to collect the data required by most coastal projects (survey of port access, site investigation, impact study, etc.). Setting up an oceanic unit requires relatively large equipment (ocean-going vessel, deep sea echosounders, long range positioning system, etc.). In a first stage, the cartographic exploitation of new surveys can still be handled by the historical charting authority.

The third phase consists in acquiring the means to produce charts and publications independently. It has to be envisaged without any undue haste, preferably in close coordination with the historical charting authority. This phase requires not only human and financial resources but also a network to distribute the documents and the ability to maintain them up-to-date.

The three phases which have been described can benefit from the assistance of a third country, within a bilateral or multilateral framework. Of course, such assistance supposes that the receiving country asks for it. This assistance can take various aspects : expertise or advice, training of staff, supply of equipment, carrying out surveys, technical assistance, etc., and rely on various financing modes (assistance in kind, national aid funds, European funds, etc.).