

RECENT CHANGES IN CANADIAN SAILING DIRECTIONS

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The Canadian Hydrographic Service has recently made some major changes in the format, contents, and methods of producing the Sailing Directions. Changes in the contents include an elimination of certain information that is already shown clearly on the charts and the use of oblique aerial photographs. Automation has been introduced for editing the type and, consequently, supplements will no longer be required.

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Studies conducted during the last five years by several hydrographic offices have resulted in changes of the format, contents and production methods of the Sailing Directions, or Pilots as they are sometimes called. Two major studies have been carried out by the British Admiralty Hydrographic Office [1] and the U.S. Naval Oceanographic Office [2]. The Canadian Hydrographic Service was assisted in its investigations by these studies. Lengthy discussions were held between the Head of the Sailing Directions Section and U.S. and British Hydrography authorities and computer experts. Also, many foreign Sailing Directions were examined for their style, lay-out, etc. Finally, a Canadian committee reviewed all the suggested changes prepared by the Sailing Directions Section, and a new format and lay-out were approved.

Historically, Canadian Sailing Directions have developed along lines similar to those produced by the British Hydrographic Department and, until the recent changes, included all their strengths and weaknesses. As is acknowledged by the British [3], although the volumes have been maintained with updated information, they have changed very little in style and format over the last one hundred years. With respect to numbers of volumes produced, the British and Canadian figures are very different. Great Britain produces charts and publications on a world-wide basis, has 76 volumes of Sailing Directions, and in 1967 sold over 70 000 books [4]. Canada, on the other hand, directs its attention primarily to her national waters, producing only 14 volumes of Sailing Directions and in 1971 selling 4441 books. To have a large production can be both a hindrance and a help. Clearly, the management of a large production is more complex, but when it comes to the economics of mechanization and automation, a large production is helpful.

It should be noted that the two major studies mentioned are obviously not the only studies and probably several other offices have been, or plan

to be, involved in similar studies and changes. It is known, for example, that other United States charting agencies have made changes to their Coast Pilots in recent years. The approach by the U.S. Naval Oceanographic Office is interesting and is described on the back of their Pilot Chart of the North Atlantic N.O. 16. Like the British, they carried out a consumer study and set up a special study group. The changes planned, however, are considerably more radical than those recommended by the British. The 70 original volumes of U.S. Sailing Directions are to be replaced by 43 volumes, namely 35 new graphic Sailing Directions (Enroute) and 8 new Sailing Directions (Planning Guides). Port facilities data, now scattered throughout 70 volumes, will be tabulated in a new expanded edition of the World Port Index, making extensive use of line drawings and photographs of the coastline. The British approach involves less change and, since it is the path the Canadian Hydrographic Service has chosen, will not be detailed at this point.

Canadian Sailing Directions have been changed in two ways. First, the format and contents have been altered considerably with an overall objective of removing much of the duplication that existed between chart and written description. Secondly, automation has been introduced with the dual objectives of cutting cost and providing a more efficient service to the mariner.

The following list identifies some of the changes that have been made to the format and contents :

1. Chapter 1, a general information chapter, will appear in a standard format with three parts :
 - Part A - General Information
 - Part B - Geographic Information and Broad Description of Port Facilities in the Area
 - Part C - Natural Conditions
2. Oblique aerial photographs have been added as an aid in describing certain harbours, bays, etc.
3. The term 'Pilot' has been replaced by 'Sailing Directions'.
4. A soft cover of new design will be used.
5. The 'Index to Charts' will face page 1 when folded out.
6. The following subject matter will be deleted :
 - a) Notes on fixing position.
 - b) Use of oil for modifying the effect of breaking waves.
 - c) Rules for revolving storms.
 - d) Rules concerning mine-sweeping operations.
7. Description of lights is confined to non-charted information.
8. Description of buoys is confined to major buoys only; light characteristics of buoys are not given.
9. Mention of fog signals is made only if useful, non-charted information is available.
10. Chart references refer only to the largest scale chart of the area being described, except when the area described overlaps two charts.

11. The indented references in the index of existing editions are deleted.
12. All numbers and fractions are expressed numerically.
13. Diagrams of buoyage systems and ice limits (if applicable) are included.
14. Details of traffic separation schemes and off-shore oil, gas and mineral exploration are included.
15. Page size is increased to 8" × 10" with two columns on each page.

It may be of interest to comment on Item 2, the use of oblique aerial photographs. Hydrographers working in the Great Lakes have become familiar with the excellent work carried out by members of the U.S. Great Lakes Cruising Club which maintains a very large volume of Sailing Directions. In it, effective use is made of oblique aerial photographs which describe graphically the complex channels that exist in many of the cruising waters of the Great Lakes. It was natural, therefore, to follow their lead and over the last two years, oblique photographs have been taken of all major ports and many of the minor ports and channels around the entire Canadian coast.

In an attempt to streamline information, consideration was given to specializing the product for different types of vessels. For example, the intricacies of shallow inshore channels will not interest the deep sea navigator nor will the deep channels often interest the small pleasure craft operator. Therefore, special small craft editions, directed towards the recreational boatman and inshore fisherman, will be produced. To date, two such books have been printed, one for the Gulf Islands on the Pacific Coast, and the other for the Trent-Severn Waterway which joins Lake Ontario to Lake Huron.

The use of automation in producing Sailing Directions has received special attention in Canada. Before embarking on this project a study was made to resolve the economic advantages of such a move, but the existence of too many unknowns prevented a satisfactory answer being given. However, forgetting the economics for the moment, it is unanimously agreed by navigators and hydrographers alike that the use of Supplements is unwieldy and inefficient. It was with the objective of getting rid of Supplements and thus providing a better service to the mariner, that the decision to use automated methods was taken. In retrospect, and as will be discussed later, it appears that automation will result in considerable cost saving.

The methods used by three different companies for automated text manipulation and production of print were studied. It soon became clear that the capability of a system was in proportion to its cost. A system called Alphatext was selected.

The Alphatext System includes an IBM 360/50 central computer linked by telephone data lines to terminals located in the customer's office. These terminals consist of a Selectric typewriter (usually an IBM 2741). Information typed is transmitted over the telephone line and placed on disc storage as a working file. Each line input is referenced and, on completing the input, a print-out is available showing all line

numbers for proof-reading. After assigning it a reference name, the total document is now placed in permanent storage where it can be retrieved rapidly on demand for revision.

When proof-reading, changes and errors are noted in the normal manner. The terminal operator makes the changes to the master file by coding them on the typewriter. The result is cost saving since the operator has only to type in changes and the author has to proof-read the changes.

Traditionally, the content-perfect manuscript is given to a qualified typesetter who retypes the document to introduce a variety of type styles and sizes. Because the text is retyped, the galleys must be proof-read, marked up, and typeset a second time. Alphatext has developed type-setting programs which can be used by the terminal operator to fully typeset documents stored within the computer system without retyping. This facility eliminates the chance of human error in retyping, resulting in a reduction in proof-reading. In the typesetting stage, the terminal operator inserts codes to indicate the type styles and page layouts required. The computer programs examine these codes, compose the pages and display them on a high-speed photo-composing machine that includes a cathode ray tube.

Another advantage of the Alphatext System is that corrections to a new edition may be made until the publication is due to be type-set by the automatic photo-composition process. This means that the new edition is more up-to-date than if it were printed using the previous method.

In making cost comparisons between the new and the old systems, some of the variables remain obscure. Clearly, the cost of getting the text onto the computer file in the first instance is high since it involves typing and coding all the material. However, when this has been accomplished, changes are simple and costs should go down considerably. With the new system, there is no need to write and print Supplements and the advantages of minimizing proof-reading have already been mentioned. One cost comparison of the first volumes shows that Alphatext cost is \$ 8500 for 1000 copies and hot-type is \$ 11 500 for the same number.

There are a number of indirect savings. One is that since the book is produced more frequently, a soft cover can be used instead of a hard cover. Previously, an edition was expected to last four and sometimes seven years and the cover was designed for that period of service. Now, a new edition will be produced yearly in the case of best sellers and every two years for areas where there is a lower demand. An attempt has been made to make the soft covers more attractive. Besides colour coding, which existed previously, the covers will carry a photograph of some marine scene, typical of the area.

Incidental to the other changes that have been discussed, several of the new volumes also will be produced in a French edition. This is consistent with Canada's bilingual policies.

The move into the new system has been made with remarkably little difficulty. So far, the customers have not voiced any criticism. Total economics will unfold only after a reasonable production period but, as was mentioned earlier, indications are that there will be significant cost savings.

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