



Ship Noon Position Data Collection Study: 1990-1999

CORA Standing Offer Task 111

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The scientific or technical validity of this Contract Report is entirely the responsibility of the Contractor and the contents do not necessarily have the approval or endorsement of the Department of National Defence of Canada.

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Defence R&D Canada
Centre for Operational Research and Analysis

Maritime Operational Research Team
Director of Maritime Strategy

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Defence R&D Canada – CORA

Contract Report
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Abstract

This report documents Task 111, Ship Noon Position Collection Study, conducted under the Centre for Operational Research and Analysis (CORA) Standing Offer. The objective of the study was to obtain a transcription of the daily noon position of each of Canada's warships as recorded in their Ship's Logs on a day by day basis for the period 1 January 1990 to 31 December 1999. This information was extracted from Ship's Logs stored in the Library and Archives of Canada between January and June 2011. The data is presented in electronic format, segregated by ship class. All of the Ship's Logs in the Library and Archives of Canada possession were reviewed but some data is not available and is therefore omitted from the report. The following ship classes were reviewed: Class DDH (Air Defence/ anti-submarine destroyer); DDE (Escort Destroyer); FFH (Patrol Frigate); FFE (Escort Frigate); AOR (Multi-Cargo Supply Ship); MCDV (Maritime Coastal Defence Vessel); and Submarines.

Résumé

Le présent document contient les résultats de l'étude de collecte de données sur la position des navires à midi, qui constituait la tâche 111 réalisée dans le cadre d'une offre à commandes du Centre de recherche opérationnelle et d'analyse (CARO). Le but de l'étude était d'obtenir une transcription du positionnement quotidien à midi inscrit dans les journaux de bord de chacun des navires de guerre canadiens du 1^{er} janvier 1990 au 31 décembre 1999. Pour y parvenir, nous avons consulté, de janvier à juin 2011, les journaux de bord conservés à Bibliothèque et Archives Canada. Les données sont présentées en format électronique et sont réparties par classe de navire. Malgré le fait que nous avons examiné tous les journaux de bord que Bibliothèque et Archives Canada avaient en leur possession, certaines données étaient manquantes et ne sont donc pas comprises dans le rapport. L'étude portait sur les classes suivantes : DDH (contre-torpilleurs antiaériens/anti-sous-marins), DDE (contre-torpilleurs d'escorte), FFH (frégate de patrouille), FFE (frégate d'escorte), AOR (pétrolier ravitailleur d'escadre), NDC (navire de défense côtière) et sous-marins.

Executive summary

Ship Noon Position Data Collection Study

Michael Joseph Murray; DRDC CORA CR 2011-186; Defence R&D Canada – CORA; November 2011.

Introduction or background: This document is the final report for Centre for Operational Research and Analysis (CORA) Standing Offer (SO) Task 111, Ship Noon Position Collection Study. The objectives of this task were to obtain a compiled record of the daily noon position, in the form of Latitude and Longitude, when recorded, of each of Canada's warships as documented in their Ship's Logs on a day by day basis for the period 1 January 1990 to 31 December 1999.

Results: A prioritized list of Canadian warships was created. The logs were transcribed into an electronic table format, segregated by ship class. The ship class was divided into Class DDE, DDH, FFH, FFE, AOR, MCDV and Submarines. The Ship's logs, which are written records maintained by ships in service with the Canadian Navy, were ordered through the Library and Archives of Canada, 395 Wellington Street, Ottawa, Ontario.

Significance: This data set will support efforts to better quantify the range and extent of the employment of ships of the Canadian Forces in a spatial and temporal context.

Future plans: It is intended to continue this effort and to add data for the decade of 2000-2009 in a follow on task.

Sommaire

Ship Noon Position Data Collection Study

Michael Joseph Murray; DRDC CORA CR 2011-186; R & D pour la défense Canada – CARO; novembre 2011.

Introduction ou contexte : Le présent document se veut le rapport final de la tâche 111 – Étude de collecte de données sur la position des navires à midi, laquelle était demandée dans le cadre d’une offre à commandes du Centre de recherche opérationnelle et d’analyse (CARO). Le but de cette tâche était de compiler, sous forme de latitude et de longitude, les données quotidiennes de positionnement à midi des navires du 1^{er} janvier 1990 au 31 décembre 1999.

Résultats : Nous avons créé une liste des navires canadiens classés par ordre de priorité. Nous avons transcrit les données inscrites dans les journaux de bord dans un tableau électronique dans lequel nous avons séparé les navires selon leur classe, à savoir : DDE, DDH, FFH, FFE, AOR, NDC et sous-marins. Les journaux de bord, qui sont des registres écrits à la main et tenus par les équipages des navires en service de la Marine canadienne, nous ont été fournis par Bibliothèque et Archives Canada, qui est situé au 395, rue Wellington, à Ottawa (Ontario).

Portée : Les données recueillies nous aideront à mieux mesurer l’étendue de l’emploi des navires des Forces canadiennes en contexte spatio-temporel.

Recherches futures : Nous souhaitons poursuivre dans cette veine en intégrant les données de la décennie 2000 à 2009 dans le cadre d’une tâche subséquente.

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1 Introduction

Introduction

This document is the final report for Centre for Operational Research and Analysis (CORA) Standing Offer (SO) Task 111, Ship Noon Position Collection Study. This task, completed by CAE Professional Services (Canada) Inc. (CAE PS), involved the transcription of the daily noon position, in the form of Latitude and Longitude, of each of Canada's warships as recorded in the Ship's Logs on a daily basis for the period 1 January 1990 to 31 December 1999.

Scope

The objectives of this task were to:

1. Create a list of all the Canadian Naval Ships that were reported on,
2. Develop a set of tables in electronic format for each ship,
3. Record the noon position on a day by day basis for the 10 year period 1 January 1990 to 31 December 1999, and
4. Prepare a report detailing the information collected.

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2 Methodology

A list of Canada's warships from the six ship classes that were in service between January 1, 1990 and December 31, 1999 was created. When a ship either entered or left service in the above period the commissioning and decommissioning dates of that ship was determined. Additional information relating to refits and repairs was collected through historical searches and references in the individual Ship's Logs. Information pertaining to these efforts were found at the following links:

- <http://www.hazegray.org>
- <http://www.readyayeready.com>
- <http://www.navy.forces.gc.ca>

Researcher status¹ was obtained to access the Ship's Logs at the Library and Archives of Canada (LAC). Due to security restrictions with the material, contact was made with the Access to Information and Privacy (ATIP) personnel, to order and view the material.

The individual Ship's Logs are compiled in storage boxes. The boxes are stored in off-site warehouse locations in both Renfrew and Gatineau. The content of each box is briefly described in typed or hand written 'Finding Aids', that are referenced in the Library and Archives of Canada. The Finding Aids were used to order the Ship's Logs for the period 1990-1999.

The corresponding reference number and box number was provided to the ATIP personnel to order the ship's logs. The boxes were ordered through the internal Archives system. A total of 10 boxes could be ordered at a specific time with a delivery latency of approximately 24-48 hours, if available.

When the material arrived at the Library and Archives of Canada, an ATIP representative inspected and removed any classified information. The material was kept under the possession of the ATIP group or locked in restricted lockers. The material could only be viewed in the 'Restricted Documents Consultation Room' within the Library and Archives of Canada during regular business hours. Personal names and information were not to be recorded at any time. When finished with the material, the Ship's Logs were returned to the possession of ATIP and returned to storage.

Additional Ship's Logs were located in the Atlantic Regional Service Centre (Halifax, Nova Scotia) and Pacific Federal Records Centre (Burnaby, British Columbia). Access to Information Requests were submitted to obtain Ship's Log stored in these locations.

2.1 Ordering of Material

Overview:

The process of obtaining the Ship's Logs for the period 1990-1999 required the assistance of several individuals within the Library and Archives of Canada. The first step in the process was for the CAE PS Researcher to register with the Library and Archives of Canada. The Researcher

¹ In order to obtain access to the Archives an individual must apply for 'Researcher Status' with the LAC.
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was required to contact the ATIP department for access to the restricted material and the restricted material was ordered through the ATIP department. The material was located in the offsite warehouse, was loaded onto trucks and delivered to the Library. The material was inspected, and was then provided to the Research for viewing in a restricted room. When finished the material is returned to the ATIP department.

The following challenges were encountered when working with the Library and Archives of Canada materials:

1. Access to Restricted Documents –

- a. To obtain permission to access to the Ship's Logs, an application for 'Researcher Status' with the Library and Archives of Canada was submitted. Many of the Ship's Logs were restricted access. A letter requesting Access to Restricted Archival Records was submitted to view all restricted documents. The security level of the Researcher was not sufficient to view all files, which required an additional level of approval to acquire the material. It took approximately 7 – 10 business days to gain access to some of the material. Although this process improved the Researchers access to information, the support of the ATIP department and other Library personnel was required and in some circumstances resulted in delays in obtaining the materials.
- b. To view the Ship's Logs, a request for files was issued with the assistance of the ATIP group. Once received at the Library, the material was kept in the possession of the ATIP group at all times. A maximum of ten boxes of material could be ordered at a single time. Only one ATIP representative was designated as the point of contact to obtain the material. If the individual was indisposed, the request for additional material would be delayed. Ordered material would take approximately 24-48 hours to arrive. If the Library had several orders on a specific day, the arrival of material would be delayed.
- c. Any Ship Logs not previously cleared through the ATIP department required an individual to physically inspect the contents of the box prior to releasing the information. The delay would range from several days to several weeks.

For future work in this area, a letter allowing access to Restricted Archival Records, should be created for the researcher. The individual would be required to qualify for 'Confidential' Access. The result would allow the Researcher to order material through the Service Deck, located in the Textual Documents Consultation Room, removing the need for the ATIP group.

2. Finding Aids –

- a. The Ship's Logs in the possession of the Library of Archives of Canada are recorded on typed and hand written finding aids that are located in the Jack M. Lowry Collection Room. The finding aids are created when DND releases material to the Library and Archives of Canada. The material in each box/file is recorded with a brief description of contents, and the finding aid is published. The finding aids for Ship's Logs were referenced to compile the required boxes of material to order.

Finding aids for 1991-1993 were problematic. Several finding aids were not complete or were not correct. As a consequence, the entire collection of boxes for finding aids for this time period needed to be ordered.

3. Off Site Material –

- a. Through the help of the Archivists and research tools, it was discovered that several Ship's Logs reside at offsite locations. The two locations, Atlantic Regional Service Centre (Halifax, Nova Scotia) and Pacific Federal Records Centre (Burnaby, British Columbia), were contacted and asked to provide access to the required material. After much discussion, and several months, an Access to Information Request was submitted to the offsite Archivists responsible for the material. The request requires a response within 30 days. The material was subsequently copied and sent to the Library and Archives of Canada, in Ottawa. In future, submitting the Access to Information Request will expedite the process.

3.2 Electronic Table Format

The noon position was recorded in electronic format. The electronic data sets were grouped according to class of warship. The following groupings were used: Class DDH (Air Defence/anti-submarine destroyer), DDE (Escort Destroyer), FFH (Patrol Frigate), FFE (Escort Frigate), AOR (Multi-Cargo Supply Ship), MCDV (Maritime Coastal Defence Vessel), and Submarines.

The information provided for each entry or record includes the following fields:

1. Ship Name – (eg. HMCS Athabaskan)
2. Pendant – Unique Identifier given to each Ship (eg. 282)
3. Date Commissioned – Date the ship became active
4. Class – Type of ship (Iroquois Class)
5. Decommissioned – Date removed from active service
6. Date – Day of the Month as recorded in Ship's Log
7. Month – Month of the year as recorded in Ship's Log
8. Year – Year as recorded in Ship's Log
9. Time – Time of day the position of the ship was recorded (eg. 12:00)
10. At Sea, Anchor, Moored to buoy, In Port – The observation of the ship movements as recorded in the Ship's Log (eg. Ship was Moored to buoy at noon, 1/1/1990)

11. Name of Port – The observation of the specific Port the ship was located as recorded in the Ship’s Log (eg. In Port – Halifax, Nova Scotia)
12. Latitude (N/S) – The observation of the recorded Ship’s position as recorded in the Ship’s Log, with reference to North/South Latitude provided.
13. Latitude Degrees - The observation of the recorded Ship’s position as recorded in the Ship’s Log, with reference to Latitude Degrees provided.
14. Latitude Minutes - The observation of the recorded Ship’s position as recorded in the Ship’s Log, with reference to Latitude Minutes provided.
15. Latitude Seconds - The observation of the recorded Ship’s position as recorded in the Ship’s Log, with reference to Latitude Seconds provided.
16. Longitude (E/W) – The observation of the recorded Ship’s position as recorded in the Ship’s Log, with reference to East/ West Longitude provided.
17. Longitude Degrees - The observation of the recorded Ship’s position as recorded in the Ship’s Log, with reference to Longitude Degrees provided.
18. Longitude Minutes - The observation of the recorded Ship’s position as recorded in the Ship’s Log, with reference to Longitude Minutes provided.
19. Longitude Seconds - The observation of the recorded Ship’s position as recorded in the Ship’s Log, with reference to Longitude Seconds provided.
20. LAC Box – The Library and Archives of Canada reference number containing the specific ship log.
21. Latitude QA/QC – Outlines potential issues with the data, referring to the Latitude Degrees as recorded.
22. Longitude QA/QC - – Outlines potential issues with the data, referring to the Longitude Degrees as recorded.
23. Distance Latitude QA/QC – Outlines potential issues with the data, referring to the distance in latitude degrees travelled in a 24 hr period as recorded.
24. Distance Longitude QA/QC – Outlines potential issues with the data, referring to the distance in longitude degrees travelled in a 24 hr period as recorded.

3 Results

Ship's Logs were reviewed through the Library and Archives of Canada. The material provided to the Archives for review was forwarded by the Department of National Defence. When compiling the Ship's Logs, several absences in the data were encountered. A thorough search for the material revealed that the information that is missing does not reside in the possession of the Library and Archives of Canada and associated networks (Halifax, Vancouver and Winnipeg Regional Offices). Ship's Logs were ordered from these locations; however, data did not arrive prior to finalizing the report. Please refer to the electronic tables provided directly to the Technical Authority for this study.

Note: During major repairs and refits, no Ship Logs are recorded. A reference start and end date is provided.

3.1 Missing Data

Class DDH (Air Defence/ Anti-Submarine Destroyer)

HMCS Algonquin – Missing year 1999 – Series not in LAC possession

HMCS Annapolis – Missing year 1991- Series not in LAC possession

HMCS Athabaskan – Missing 25/11/1994 to 31/12/1998, Series stored at the Atlantic Federal Records Centre, Halifax, Nova Scotia

HMCS Fraser – Missing Log – January 1993

HMCS Skeena – Missing Log – December 1990

Class DDE (Escort Destroyer)

HMCS Kootenay – Ship entered dry dock for Bow repair following collision with merchant ship. Repairs started after Jan 1, 1991 to 21/7/1991. No logs for 1991 and 1992 inclusive. Unable to locate logs or status of ship during this period.

HMCS Restigouche – Missing Log May 1991 – Note: On Loan to AJAG Victoria, for use in civil court case, dated March 1993

HMCS Terra Nova – Missing years 1990, 1991, 1995, 1996, 1997, Series stored at the Atlantic Federal Records Centre, Halifax, Nova Scotia

Class FFH (Patrol Frigate)

HMCS Charlottetown – Missing Logs – November and December 1995

HMCS Halifax – Missing Logs – September 1991, October 1991 (Prior to Ship being commissioned)

- Missing Logs – November 1991 to March 1992, Ship may have entered dry dock in St. John, New Brunswick. (Prior to Ship being commissioned)
- Missing Logs – July 1992 to December 1992, Unknown Location
- Missing Logs – February, May, June, October, December 1993
- Missing Logs – January, February, June 1995
- Missing Log – January 1996

HMCS Montreal – Missing Log – December 1996

HMCS St. John's – Missing Log – January 1998

HMCS Vancouver – Missing year 1998, Series stored at the Pacific Federal Records Centre, Burnaby, British Columbia

Class FFE (Escort Frigate)

No Ship's active during 1990-1999 period

Class MCDV (Maritime Coastal Defence Vessel)

HMCS Brandon – Ship Commissioned June 1999. No Ship's Logs found for year 1999, Series not in LAC possession

HMCS Edmonton – Missing year 1999, Series not in LAC possession

HMCS Moncton - Ship Commissioned July 1998. No Ship's Logs found for year 1998, 1999, Series not in LAC possession

HMCS Nanaimo – Missing Logs 10/5/1997 to 31/12/1998, Unknown Location

- Missing Logs – 1/4/1999 to 2/11/1999, Unknown Location

HMCS Saskatoon – Missing Log – May 1999

HMCS Shawinigan - Ship Commissioned June 1997. No Ship's Logs found for year 1997, 1998, and 1999. Series not in LAC possession

HMCS Whitehorse – Missing Logs – November and December 1998

Class AOR (Multi-Cargo Supply Ship)

HMCS Preserver – No Ship's Logs found in LAC possession from 1990-1996. The ship was active during this period. It is believed the ship entered Refit in June 1996 to November 1997. Ship's Log found from 29/11/1997 to 31/12/1999.

HMCS Protecteur - Missing years 1997, 1998 – Series not in LAC possession.

Class SS (Patrol Submarine)

HMCS Ojibwa – Missing Logs – July, September, October and November 1990.

- Missing Log – January 1991
- Missing Year 1992 – Series not in LAC possession
- No Ship’s Logs December 1993 to Ship Decommissioning in May 1998
- Information Gathered:
 - a. Ship Entered Refit November 1993 to End of 1994
 - b. Missing Year 1995 - Series not in LAC possession
 - c. Ship entered refit early 1996 – May 1996
 - d. Missing Year 1997 – Series not in LAC possession

HMCS Okanagan – Missing Logs from September 1991 to January 1996

- Information Gathered:
 - a. Ship Entered Part II SRU(A) Refit 22/9/1991 to 1992
 - b. Ship Entered Sonar Refit during 1993
 - c. Missing Years 1994, 1995 – Series not in LAC possession
- Missing Logs January to February 1997 – Possible refit during time period
- Missing Log – May 1997

HMCS Onondaga – Missing Year 1990 – Possible Refit during time period

3.2 Tables of Results

Tables for each of the classes of ships for the 10 year period covered by this study created in MS Excel worksheets were provided on Compact Disc in electronic form to the Technical Authority. An example print out of the table structure is shown in Annex A.

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4 Summary

The Noon position of all of the Canadian Navy Ships on a day by day basis for the 10 year period January 1, 1990 to December 31, 1999 was compiled in electronic table format. The information was compiled by referencing the Ship's Logs of each of Canada's warship during the 10 year period. All the Ship's Logs were ordered through the Library and Archives of Canada with the help of the ATIP group.

The data set was completed to the fullest extent possible using the materials that were available. Material that is outstanding does not appear to be in the possession of the Library and Archives of Canada. Any additional information acquired after the completion of this report will be provided and the tables amended.

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Annex A - Example of the Ship Position Tabular Data

The following is a small sample of the Ship Position Tabular Data that was created, populated and then subsequently provided to the Technical Authority.

Ship Name	Hull #	Date Commissioned	Class	Decommissioned	Day	Mon	Yr	Time	At Sea, Anchor, Moored	Name of Port	Latitude NS: North or	Latitude # of Degrees	Latitude # of Minutes	Latitude # of Seconds	Longitude e EW: East or	Longitude e # of Degrees	Longitude e # of Minutes	Longitude # of Seconds
HMCS Vancouver	331	23/08/1993	Halifax	Active	11	9	1992	12:00	In Port	Halifax, Nova Scotia	Ship Commissioned							
HMCS Vancouver	331	23/08/1993	Halifax	Active	12	9	1992	12:00	In Port	Halifax, Nova Scotia								
HMCS Vancouver	331	23/08/1993	Halifax	Active	13	9	1992	12:00	In Port	Halifax, Nova Scotia								
HMCS Vancouver	331	23/08/1993	Halifax	Active	14	9	1992	12:00	In Port	Halifax, Nova Scotia								
HMCS Vancouver	331	23/08/1993	Halifax	Active	15	9	1992	12:00	In Port	Halifax, Nova Scotia								
HMCS Vancouver	331	23/08/1993	Halifax	Active	16	9	1992	12:00	In Port	Halifax, Nova Scotia								
HMCS Vancouver	331	23/08/1993	Halifax	Active	17	9	1992	12:00	In Port	Halifax, Nova Scotia								
HMCS Vancouver	331	23/08/1993	Halifax	Active	18	9	1992	12:00	In Port	Halifax, Nova Scotia								
HMCS Vancouver	331	23/08/1993	Halifax	Active	19	9	1992	12:00	In Port	Halifax, Nova Scotia								
HMCS Vancouver	331	23/08/1993	Halifax	Active	20	9	1992	12:00	In Port	Halifax, Nova Scotia								
HMCS Vancouver	331	23/08/1993	Halifax	Active	21	9	1992	12:00	In Port	Halifax, Nova Scotia								
HMCS Vancouver	331	23/08/1993	Halifax	Active	22	9	1992	12:00	In Port	Halifax, Nova Scotia								
HMCS Vancouver	331	23/08/1993	Halifax	Active	23	9	1992	12:00	In Port	Halifax, Nova Scotia								
HMCS Vancouver	331	23/08/1993	Halifax	Active	24	9	1992	12:00	In Port	Halifax, Nova Scotia								
HMCS Vancouver	331	23/08/1993	Halifax	Active	25	9	1992	12:00	Day Trip	Halifax, Nova Scotia	N	44	33	1	W	63	26	8
HMCS Vancouver	331	23/08/1993	Halifax	Active	26	9	1992	12:00	In Port	Halifax, Nova Scotia								
HMCS Vancouver	331	23/08/1993	Halifax	Active	27	9	1992	12:00	In Port	Halifax, Nova Scotia								
HMCS Vancouver	331	23/08/1993	Halifax	Active	28	9	1992	12:00	In Port	Halifax, Nova Scotia								
HMCS Vancouver	331	23/08/1993	Halifax	Active	29	9	1992	12:00	In Port	Halifax, Nova Scotia								
HMCS Vancouver	331	23/08/1993	Halifax	Active	30	9	1992	12:00	At Sea		N	44	36	4	W	63	33	3
HMCS Vancouver	331	23/08/1993	Halifax	Active	1	10	1992	12:00	At Sea		N	42	27	4	W	69	58	5
HMCS Vancouver	331	23/08/1993	Halifax	Active	2	10	1992	12:00	In Port	Boston, Massachusetts								
HMCS Vancouver	331	23/08/1993	Halifax	Active	3	10	1992	12:00	In Port	Boston, Massachusetts								
HMCS Vancouver	331	23/08/1993	Halifax	Active	4	10	1992	12:00	In Port	Boston, Massachusetts								
HMCS Vancouver	331	23/08/1993	Halifax	Active	5	10	1992	12:00	At Sea		N	42	25	1	W	70	47	0
HMCS Vancouver	331	23/08/1993	Halifax	Active	6	10	1992	12:00	At Sea		N	43	56	4	W	63	32	7

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List of symbols/abbreviations/acronyms/initialisms

AOR	Multi-Cargo Supply Ship
ATIP	Access to Information and Privacy
CAE PS	CAE Professional Services Canada, Inc.
CORA	Centre for Operational Research and Analysis
DDH	Destroyer Helicopter Escort
DDE	Destroyer Escorts
DND	Department of National Defence (Canada)
DRDC	Defence Research & Development Canada
FFH	Patrol Frigate
FFE	Escort Frigate
LAC	Library and Archives of Canada
MCDV	Maritime Coastal Defence Vessel
SO	Standing Offer
SOW	Scope of Work
SS	Patrol Submarine

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This report documents Task 111, Ship Noon Position Collection Study, under the Centre for Operational Research and Analysis (CORA) Standing Offer. The objective was to obtain a transcription of the daily noon position of each of Canada's warships as recorded in their Ship's Logs on a day by day basis for the period 1 January 1990 to 31 December 1999. This information was extracted from Ship's Logs stored in the Library and Archives of Canada between January and June 2011. The data is presented in electronic format, segregated by ship class. All of the Ship's Logs in the Library and Archives of Canada possession were reviewed but some data is not available and is therefore omitted from the report. Ship classes reviewed: Class DDH (Air Defence/ anti-submarine destroyer), DDE (Escort Destroyer), FFH (Patrol Frigate), FFE (Escort Frigate), AOR (Multi-Cargo Supply Ship), MCDV (Maritime Coastal Defence Vessel), and Submarines. Class Minesweeper was not active during review period.

Le présent document contient les résultats de l'étude de collecte de données sur la position des navires à midi, qui constituait la tâche 111 réalisée dans le cadre d'une offre à commandes du Centre de recherche opérationnelle et d'analyse (CARO). Le but de l'étude était d'obtenir une transcription du positionnement quotidien à midi inscrit dans les journaux de bord de chacun des navires de guerre canadiens du 1er janvier 1990 au 31 décembre 1999. Pour y parvenir, nous avons consulté, de janvier à juin 2011, les journaux de bord conservés à Bibliothèque et Archives Canada. Les données sont présentées en format électronique et sont réparties par classe de navire. Malgré le fait que nous avons examiné tous les journaux de bord que Bibliothèque et Archives Canada avaient en leur possession, certaines données étaient manquantes et ne sont donc pas comprises dans le rapport. L'étude portait sur les classes suivantes : DDH (contre-torpilleurs antiaériens/anti-sous-marins), DDE (contre-torpilleurs d'escorte), FFH (frégate de patrouille), FFE (frégate d'escorte), AOR (pétrolier ravitailleur d'escadre), NDC (navire de défense côtière) et sous-marins.

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noon position, ship position, fleet activity, ship activity, Fleet Location Data Set



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