



Basic ENC and ENC Production Kingston, Jamaica 6th – 17th September 2010



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INTERNATIONAL MARITIME ORGANIZATION

SUMMARY SHEET

Title of the course: Basic ENC and ENC production

Host: Rear Admiral Peter Brady, Maritime Authority of Jamaica (MAJ)

Venue and date: Kingston, Jamaica – 6 to 17 September 2010

Type: Regional

Organized by: MAJ

Supported by: United Kingdom Hydrographic Office

No. of participants and no. of countries: 15 participants from 11 countries

Summary –

Several countries in this region have followed a systematic provision of training related to hydrographic survey and nautical charting. This course was a continuation of such and provided an understanding of Electronic Navigational Charting (ENC) and the associated international standards, mainly IHO Standard S-57. The training was aimed at explaining the production phases through a series of practical exercises, in order to fully understand the complete process of ENC production.

Participants were assessed by completing a test at the end of both weeks. The successful outcome for each student was measured by achieving an overall pass rate of a 50%.

It was evident in group discussions that ENC production will require further and extensive ENC production training (similar to UKHO five week course) and that resources and financial restraints will further hinder the provision of ENC software and equipment to proceed with ENC production within this region compliant to S-65 requirements.

The training was a great success and a course of action is required to develop and stimulate the progress of the collection, capture and distribution of ENC data for the benefit of the SOLAS mariner using electronic charts in this region.

Key words:

ENC – Electronic Navigational Charts

UKHO – United Kingdom Hydrographic Office

Report ref:

Programme No.TC/0202: Support to small islands developing States (SIDS) and least developed countries (LDCs) for their shipping needs, Global Activity No.2: Regional training course on basic ENC and ENC production
WBS Element No. TC/0202-02-2000

Co-ordinator:

REGIONAL TRAINING COURSE IN BASIC ENC AND ENC PRODUCTION REPORT

Course: Basic ENC and ENC Production

Introduction

A regional training course to benefit countries in the area of influence of the Meso-American and Caribbean Sea Hydrographic Region on basic Electronic Navigational Charting (ENC) and Electronic Navigational Chart production was held in Kingston, Jamaica. The course was hosted by the Maritime Authority Jamaica. It was funded by IMO under the Support to Small Islands Developing States (SIDS) and least developed countries (LDCs) programme and organized in conjunction with the International Hydrographic Organization (IHO) and the United Kingdom Hydrographic Office (UKHO).

Several countries in the region have followed a systematic provision of training related to hydrographic surveying and nautical charting. This course was a continuation of such and provides an understanding of Electronic Navigational Charting (ENC) and the associated international standards, principally the IHO Standard S-57. Furthermore, it was aimed at explaining the production phases through a series of practical exercises, in order to fully understand the complete process of ENC production.

The course programme aimed to provide the delegates with an understanding of the navigational chart (paper and digital) and to enable the transition from paper to ENC to be understood and placed into context.

The IMO mandating of ECDIS on SOLAS vessels scheduled for full implementation by 2018 requires all International Hydrographic Organization (IHO) member states to provide official chart data produced to the IHO S-57 transfer standard so that vessels can meet carriage requirements (IHO S-66).

To understand ENC you must first have an understanding of the content and construction of the paper chart and how the mariner will use the chart. Constant comparison between the paper chart detail and the ECDIS display of ENC data was provided enabling the students to gain an awareness of the need to ensure all information contained on the paper chart is also shown in an ENC. The uniqueness of symbols and functions within the ECDIS was also emphasized during the course.

Participants were officers from maritime administrations. The training course was conducted in English and no interpretation was required.

Objectives

The training course was intended to provide practical guidance for those who are concerned with the future production and data supply of ENC information.

The principal course objectives:

- Demonstrate an understanding of paper chart compilation by completing practical exercises' and successfully completing end of week test.

- Demonstrate an understanding of the similarities and differences between paper chart and ENC construction through discussion and practical exercises.
- Demonstrate an understanding of the international standards relating to Electronic Charts through discussion and completing practical exercises.
- Demonstrate an understanding of the IHO Standard S-57, by completing practical exercises using S-57 documentation.
- Demonstrate through discussion the regulations relating to Electronic Navigational Charts.
- Demonstrate an understanding of the role and purpose of the Electronic Navigational Chart through practical exercises.
- Demonstrate an understanding of the content and construction of an ENC through final end of course test.

Venue, dates, roles and participants

Venue:

The course was held at the Caribbean Maritime Institute (CMI) in Kingston, Jamaica at the bequest of Rear Admiral Peter Brady, Maritime Authority of Jamaica (MAJ). This facility was adequate for the course. CMI provided the students and instructors a well-laid-out classroom with large drafting tables for the necessary training and chart work. The audiovisual equipment was supplied by MAJ. In addition, the Institute offered all students lunch on premises at a very nominal fee.

Date:

6 - 17 September 2010

Instructors:

Mr Derek Aldridge (Technical/Cartographic Trainer UKHO, UK) and Mr Kenneth Blagdon (Technical/Cartographic Trainer UKHO, UK) conducted the two week course. Both instructors had a high level of experience (each having over 25 years), skill and knowledge of paper and digital charting.

The instructors worked cooperatively to ensure all the students were actively engaged and participating by allowing them to explain their concerns and relay stories of note for all to learn by. This interactive approach was a key to the success of the course, as the training objectives were enhanced by ensuring that each lesson was delivered with a shared learning objective.

Representatives:

Representatives from Jamaica, Nicaragua, Honduras, El Salvador, Trinidad & Tobago, Guatemala, Haiti, Suriname, Guyana, Dominica, St. Vincent & Grenadine and Antigua attended (see Annex A – List of Participants).

The instructors were very pleased with the student body, as there was an appropriate mix of national and local port and harbour authorities. Their industry related backgrounds, eagerness to learn and keen interest towards understanding ENC and ECDIS (within their region) was evident and noteworthy.

Cost

Cost Element (in US\$)

TC/0202-02-2000 (TC Fund)

501150	Consultant Fees & Others	8000.00
501155	Consultant DSA	4000.00
501160	Consultant Fare	7000.00
503210	Group Training	60000.00
505310	Sundries	<u>1000.00</u>
Total		80000.00

Activities and proceedings

Pre-course assignments

None provided

Opening Ceremony

Rear Admiral Peter Brady (Director General – Maritime Authority of Jamaica) and Colin Young (IMO Regional Maritime Advisor – Caribbean) opened the training course. The point was made by both speakers that the production of Electronic Navigational Charts has to be developed in the region. The mandating of ECDIS on SOLAS vessels would commence in 2012 and it is vitally important that the region is in a position to support the IMO mandating.

See Annex B - Opening Remarks

The closing ceremony was addressed by Rear Admiral Peter Brady (Director General – Maritime Authority of Jamaica), Colin Young (IMO Regional Maritime Advisor – Caribbean) and Derek Aldridge and included the awarding of certificates to the students.

Course Proceedings

The course commenced with a session in which the students and instructors introduced themselves. Following the introductions the course commenced with a series lectures using power points and varied communication and charting tools. The instructors emphasized the need that to fully understand Electronic Navigational Charts (ENCs) the cartographer must first have a sound understanding of the content of the paper chart and how it is used. The first weeks proceedings were mainly aimed at introducing the students to the complex content of the paper chart and through a series of practical exercises show the students how the paper chart is used from a route planning and situation awareness perspective. The first week also aimed to demonstrate through the regular use of ECDIS how the functionality capabilities of

electronic charting will differ from the traditional chart but also highlighting the similarities with traditional paper chart use. The second week concentrated on the structure, construction and distribution of ENC data, introducing the students to IHO standards including S-57, S-58 and S-65.

The course went to schedule although some practical exercises were omitted due to timescales. This is not unusual as the course workbook contained additional exercises which the instructors encouraged the students to work through after the course.

Week 1 – The Paper Chart and ECDIS

The following daily structured training sessions were conducted consolidating the lectures with ECDIS demonstrations, paper chart demonstrations, group discussions and practical exercises.

Day 1 - The content (design)
Day 2 - Using the chart
Day 3 & 4 - Data and compilation
Day 5 - Data and assessment

The above sessions were led by Mr Derek Aldridge and supported by Mr Ken Blagdon

Week 2 – ENC awareness

The following daily structured training sessions were conducted consolidating the lectures using ECDIS demonstrations, dKart demonstrations, group discussions and practical exercises.

Day 6-9 – Data capture using IHO Publications S-57
Day 10 – Data validation (IHO S-58), ENC Quality Procedures and Course Review.

The sessions were led by Mr Ken Blagdon and supported by Mr Derek Aldridge.

Syllabus detail is attached in Annex C.

Details of the aims and objectives for each lecture delivered are attached in Annex D.

List of Reference Material supplied by UKHO trainers to the students is attached in Annex E.

Course proceedings not originally scheduled into the course

Derrick McLennon conducted a one hour tour of the Caribbean Maritime Institute simulator on day four. The simulator was provided by TRANSAS (TRANSAS 3000) and carried TRANSAS charts (unofficial charts). This was a very interesting session which contributed to the course by highlighting the value and importance of ECDIS installation on the bridge as a further navigational tool.

Assessment and anticipated outcome

Weekly evaluation tests as required in the IMO contract for this course were conducted on day 5 and 9. The success criteria was to achieve an overall pass mark of 50% test score but consideration was also made regarding attitude and course conduct and any learning issues such as language misunderstanding due to the course not being conducted in some students first language.

See Annex F for Course Assignments - Student Results

Achievements and conclusions

The instructors were grateful for the administrative support provided by the staff from the Maritime Authority of Jamaica. Rear Admiral Peter Brady and his staff paid close attention to all requests including travel support, office supplies and transportation. This allowed for the instructors, and the students, to concentrate on their training and learning tasks, which in hand, ultimately led to a very productive whilst at the same time very enjoyable fortnight.

The weekend activities arranged by MAJ were very enjoyable and were a welcome break from the classroom environment. Saturday was an opportunity to shop at Half Way Tree, Kingston and Sunday was a trip to the beautiful Dunns' River Falls on the north course of the island.

Students were knowledgeable, engaging and were genuinely interested in the subject matter. The feedback (See Annex G for Student Survey Results) on all aspects relating to this training confirms this finding and shows a high level of success. It was evident from the classroom conversations and remarks made in the student surveys that the course was very challenging and intense with a lot of information covered in just ten days. It was also clear from feedback that further training and support building on from this course in ENC production would be required by representatives who were being proactive in beginning the production of ENCs.

It was evident in group discussions that ENC production will require further and extensive ENC production training (similar to UKHO five week course) and that resources and financial restraints will further hinder the provision of ENC software and equipment to proceed with ENC production within this region compliant to S-65 requirements.

The course was a great success which was much needed within this region and now a course of action is required to develop and stimulate the progress in the collection, capture and distribution of ENC data for the common benefit of the SOLAS mariner in their use of ECDIS.

Annex A LIST of Participants

**TRAINING COURSE IN BASIC ENC AND ENC PRODUCTION
KINGSTON JAMAICA**

NAME	COUNTRY	ORGANISATION	CONTACT INFORMATION
Derek Aldridge - Instructor	UK	UK Hydrographic Office	Derek.aldridge@ukho.gov.uk
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ANNEX B

BASIC ENC AND ENC PRODUCTION TRAINING COURSE

Opening Remarks

Regional training course on Electronic Navigational Charts (ENC) and Electronic Navigational Chart production

Jamaica, 6 to 17 September 2010

I bring you the greetings of the Secretary-General of the International Maritime Organization (IMO), Mr Mitropoulos, with his best wishes for the success of this course on Electronic Navigational Charts. He is pleased that this course is the result of very close collaboration between IMO and the International Hydrographic Bureau in response to requests from Caribbean Member States.

The SOLAS Convention is one of the principal conventions that support IMO's mission of safe, secure and efficient shipping on cleaner oceans, and as you are aware, matters related to hydrographic services, and Electronic Charting are referred to in chapter V of the SOLAS Convention, Safety of Navigation. Therefore, the Organization is especially pleased to support and facilitate this course.

The International Hydrographic Organization is the authoritative body which actively engages all coastal and interested States to advance maritime safety and efficiency and which supports the protection and sustainable use of the marine environment. Its mission is to create a global environment in which States provide adequate and timely hydrographic data, products and services and ensure their widest possible use.

It is estimated that over 30% of the world's crude oil passes through the Caribbean which is home to over 50% of the world's cruise shipping. In addition, the Caribbean endures a hurricane season from June to November; the storms can and do leave a trail of devastation on the islands and their coasts. For these reasons, it is crucial that Contracting Governments undertake hydrographic surveys as and when required, that they arrange for the compilation and publication of hydrographic data, the dissemination and keeping up to date of all nautical information necessary for safe navigation. Maintaining an understanding and awareness of developments in the hydrographic and cartographic community is also paramount, and this course supports that continuous professional development approach.

With the future mandatory carriage requirement of ECDIS being implemented according to a phased-in timetable with effect from 1 July 2012, it is also of importance for hydrographic organizations to have a practical understanding of Electronic Navigational Charts (ENC), the transition from paper chart to ENC, and international standards relating to the production of ENCs.

I would like to wish you all a successful, productive and effective course.

In conclusion, we would like to thank the Government of Jamaica for hosting this important activity and to thank IHO for their unquestionable support.

Thank you.

ANNEX C

BASIC ENC AND ENC PRODUCTION TRAINING COURSE

SYLLABUS AND TIMETABLE

Course Times: 0830 – 1630hrs

Lunch break: 1230 – 1330hrs

1	<p>Course Aims & Objectives Introduction/ Opening Ceremony History, role and purpose of the Navigational Chart History, role and responsibilities of an Hydrographic Office Types of chart and chart users; ENC usage bands Chart scales/marginalia/titles/notes Introduction to ENC – transition from Paper charts via ARCS</p>	
2	<p>Navigational Publications Latitude and Longitude Bearing and Distance Chart Datum (Horizontal) Chart Projections</p>	
3	<p>Source material: types, analysis and depiction (paper and digital material) Depth Selection and Units / Contours Type Styles / Name placement</p>	
4	<p>Chart Symbols and Abbreviations Navigational Dangers Chart Datum (vertical) – Tides Navigational Aids Navigational Buoys the IALA Buoyage System</p>	
5	<p>Navigational Lights (and Sectors) Topography and the chart (Paper & ENC) Data Assessment and Chart Maintenance (Paper and Digital) Evaluation Quiz Week 1 View from the Bridge Video</p>	

Week 1- Paper Chart & ECDIS awareness

Week 2 – ENC Awareness

6	<p>What is ENC? History and development of ENC Overview of IHO S-57 Introduction to IHO S-52 IHO S-65 – ENC Production; Responsibilities and requirements</p>	
7	<p>Introduction to Objects and attributes Introduction to Topology Introduction to Polygons ENC Product Specifications Object Catalogue (including Use of the Object Catalogue) Attribute Catalogue and Mandatory Attributes</p>	
8	<p>ENC Objects and attribution META Objects Lights and Light Supports Light Sectors Rocks Wrecks & Obstructions Group 1 Polygons/Depth Areas Textural & Pictorial Representation files</p>	
9	<p>ENC Production Quality Procedures Validation of ENCs - IHO S58 Distribution of ENCs Evaluation Quiz Week 2</p>	
10	<p>Evaluation Week 2 Feedback Future Development – S100 ECDIS – a navigation scenario E Navigation SOLAS – Chart carriage regulations S-66 Course review Closing Ceremony/ Presentation of Certificates</p>	

ANNEX D

BASIC ENC AND ENC PRODUCTION TRAINING COURSE

SYNOPSIS OF LECTURES

History, role and purpose of the Navigational Chart

Aims: To introduce students to the principle features of a navigational chart.

Objectives: To describe the principle components of a navigational chart.

Training method: PowerPoint Talk

Exercise: Difference/Similarity - Map v Chart

Assessment: Tutor to check student answers against trainers list.

History, role and responsibilities of a Hydrographic Office

Aims: To introduce students to the principle roles of a Hydrographic capacity as outlined in IHO S-2.

Objectives: To describe the principle responsibilities of an IHO member state.

Training method: PowerPoint Talk

Exercise: no exercise

Assessment: Tutor to check student understanding through discussion.

Types of chart and chart users; ENC usage bands (including Chart scales/marginalia/titles/notes)

Aims: To introduce students to different types of chart user.

To introduce students to different chart scales their relevance to the mariner and how they are used.

Objectives: To show an understanding of the different types and scales of navigational chart and how they are used by the mariner

Training method: Talk through a series of paper charts (Portland series)

Demonstrate ECDIS and discuss differences with paper chart

Exercise: List possible users of navigational charts

Assessment: Tutor to check student answers against trainers list and understanding through group discussion

Introduction to ENC – transition from Paper charts via ARCS

Aims: To introduce students to the progressive approach to moving from paper to electronic charts.

Objectives: To describe the principle components of a navigational chart.

Training method: PowerPoint Talk/ECDIS demonstration of RCDS.

Exercise: No exercise

Assessment: Tutor to check student understanding through group discussion

Latitude and Longitude

Aims: To introduce students to the concepts of plotting positions using Latitude and Longitude.

Objectives: To demonstrate an understanding of Latitude and Longitude through plotting and reading geographical positions on navigational charts.

Training method: PowerPoint Talk and Demonstration

Exercise: Practical Plotting exercises

Assessment: Tutor to check positions

Bearing and Distance

Aims: To introduce students to the concepts of plotting positions using bearing and distance

Objectives: To demonstrate an understanding of bearing and distance through plotting and reading geographical positions on navigational charts.

Training method: PowerPoint and demonstration

Exercise: Practical Plotting exercises

Assessment: Tutor to check positions

Chart Datum (Horizontal)

Aims: To introduce students to the datum's used on Admiralty charts

Objectives: To show an appreciation, in discussion, of the components and importance of using appropriate datum's on navigational charts.

Training method: PowerPoint talk

Exercise: Plot positions on charts of different datum's and calculate shift values

Assessment: Tutor to check positions and shift values

Chart Projections

Aims: To introduce students to the main projections and grids used on Admiralty charts.

Objectives: To show an appreciation, in discussion, of the components of the major projections used for navigational charts.

Training method: PowerPoint talk and video

Exercise: Route planning exercise

Assessment: Tutor to check positions

Source material: types, analysis and depiction (paper and digital material)

Aims: To introduce students to the different types of source material used in the compilation of a navigational chart.

Objectives: To demonstrate an understanding of the wide variety of source data used to compile a navigational chart and the need for the accurate and timely assessment of this data

Training method: Group discussion

Exercise: Brain storming session listing types of data.

Assessment: Tutor to check student understanding through group discussion.

Depth Selection and Units / Contours

Aims: To introduce students to depths, depth units and depth contours used on charts and the principles of sounding selection.

Objectives: To demonstrate an understanding of the principles of sounding selection by completing related exercises

Training method: PowerPoint talk and interactive demonstration with group discussion

Exercise: Estuary River sounding selection exercise

Assessment: Tutor to check selections against answer sheet

Type Styles / Name placement

Aims: To introduce students to text and type styles used on paper charts.

To introduce students to name placement design used on paper charts.

To show students how the ECDIS displays textual information.

Objectives: To demonstrate an understanding of the text and type styles used on charts by completing related exercises.

To demonstrate an understanding of name placement on charts by completing related exercises.

To demonstrate an understanding of issues encountered on the ECDIS displays through group discussion.

Training method: PowerPoint talk

Exercise: Chart text exercise 123

Chart text exercise 456

Ilfracombe name placement exercise

Assessment: Tutor to check student answers against trainers list and understanding through group discussion

Chart Symbols and Abbreviations

Aims: To introduce students to the chart symbols and abbreviations used on charts.

To introduce students to symbology (S-52) used in ECDIS.

Objectives: To recognize chart symbols and abbreviations with reference to chart 5011 (Int1).

To apply the correct symbology when compiling a chart.

Training method: PowerPoint and group discussion

Exercise: Symbol design exercise

Brixham symbol recognition exercise

Assessment: Tutor to check student answers against trainers list and understanding through group discussion

Navigational Dangers

Aims: To introduce students to navigational dangers and their depiction on navigational charts.

Objectives: To demonstrate an understanding of the depiction of navigational dangers on navigational charts by completing related exercises.

Training method: PowerPoint talk and discussion

Exercise: Group exercise – Natural and artificial dangers

Assessment: Tutor to check student understanding through group discussion

Chart Datum (vertical)

Aims: To introduce the students to the principles of vertical datum.

Objectives: To demonstrate an understanding of vertical datum by completing related exercises

Training method: PowerPoint talk and RNLI e-learning software

Exercise: Practical exercise – over the bar under the bridge

Assessment: Tutor to check answers to questions

Navigational Aids

Aims: To introduce students to navigational aids depicted on charts.

Objectives: To be able to identify and understand the significance of navigational aids

Training method: PowerPoint and group discussion

Exercise: Brainstorming session listing types of navigational aids

Assessment: Tutor to check student understanding through group discussion

Navigational Buoys the IALA Buoyage System

Aims: To introduce students to navigational buoys and the IALA buoyage system.

Objectives: To be able to identify and understand the significance of navigational buoys by completing related exercises.

To demonstrate an understanding of the IALA buoyage system by completing a practical exercise.

To be able to identify the type and shape of all buoys depicted in 5011 by completing various compilation exercises.

Training method: PowerPoint talk and RNLI e-learning software

Exercise: Interactive exercise using RNLI software

Buoy town exercise

Assessment: Tutor to check answers to questions

Navigational Lights (and Sectors)

Aims: To introduce students to navigational lights and their depiction on charts.

Objectives: To be able to identify and understand the significance of navigational lights.

To demonstrate an understanding of the function of navigational lights and their charted depiction.

Training method: PowerPoint talk

Exercise: Bishops Rock description exercise

Assessment: Tutor to compare student description against answer sheet

Topography and the chart (Paper & ENC)

Aims: To introduce students to the depiction of topographical detail on a navigational chart.

Objectives: To demonstrate an understanding of how topographic detail is depicted on charts by completing related exercises.

Training method: PowerPoint talk and interactive exercise

Exercise: Watchet exercise

Assessment: Tutor to compare the student selection against current chart

Data Assessment and Chart Maintenance (Paper and Digital)

Aims: To introduce students to hydrographic data assessment

Objectives: To understand the importance & need for hydrographic data assessment.

To demonstrate an understanding of data assessment procedures & selection rules of thumb.

Training method: PowerPoint talk and discussion

Exercise: Blood Brother assessment exercise

Chart maintenance exercise

Assessment: Tutor to compare student selection against answer sheet

What is ENC?

Aims: To introduce students to Electronic Charting

Objectives: To demonstrate an understanding of ENC

Training method: PowerPoint talk and Video – View from A Bridge

Exercise: Advantages and Disadvantages of ENC

Assessment: Tutor to check student understanding through group discussion

History and development of ENC

Aims: To inform students of ENC developments and maintenance of the standards.

Objectives: To explain the key issues affecting the development of ENC

Training method: PowerPoint

Exercise: None

Assessment: Tutor to check student understanding through group discussion

Overview of IHO S-57

Aims: To introduce students to IHO S-57

Objectives: To demonstrate an understanding of the basic structure of an ENC.

Training method: PowerPoint

Exercise: This session concludes in an exercise in which the students attribute charted features. The attribution should be done without reference to S-57 documentation, to enable the students to interpret the key elements of objects correctly.

Assessment: Tutor to compare student selection against answer sheet

Introduction to Objects and attributes

Aims: To familiarize students to IHO Publications

Objectives: To demonstrate an understanding of Object Classes and their attributes by correctly identifying and attributing charted symbols in relation to the real world.

Training method: Talk and discussion using IHO publications and DKart demonstration.

Exercise: This session concludes in an exercise in which the students attribute charted features. The attribution should be done without reference to S-57 documentation, to enable the students to interpret the key elements of objects correctly.

Assessment: Tutor to check student understanding through group discussion

Introduction to Topology

Aims: To introduce students to chain-node topology

Objectives: To demonstrate an understanding of how topology is constructed by completing a related exercise.

Training method: PowerPoint and dKart demonstration

Exercise: Practical exercise

Assessment: Tutor to check student answers against trainers list and understanding through group discussion.

Introduction to Polygons

Aims: Introduce students to the types of area feature used in S-57

Objectives: To demonstrate an understanding of polygons within ENC by correctly defining polygons on a navigational chart

Training method: PowerPoint and dKart demonstration

Exercise: The exercise is a paper exercise referring to a chart to enable the students to envisage the structure of an ENC in relation to polygons.

Assessment: Tutor to check student answers against trainers list and understanding through group discussion

ENC Product Specifications

Aims: To introduce students to the content and format of data required in an ENC.

Objectives: To describe the content and structure of ENC data following reference to the ENC Product Specification

Training method: PowerPoint; S-57 ENC Product Specification

Exercise: Group discussion

Assessment: Tutor to check student understanding through group discussion

Object Catalogue (including Use of the Object Catalogue)

Aims: Enable the students to use the relevant documentation to correctly identify charted features.

Objectives: To use the Use of the Object Catalogue to define charted features correctly with appropriate Object and Attribute values.

Training method: Demonstration using relevant IHO Publications.

Exercise: Using the Use of the Object catalogue.

Assessment: Tutor to check student answers against trainers list and understanding through group discussion.

Attribute Catalogue and Mandatory Attributes

Aims: Enable the students to use the relevant documentation to correctly attribute features.

Objectives: To attribute charted features correctly using the Attribute Catalogue

To identify and encode mandatory objects correctly for charted features

Training method: PowerPoint and demonstration using Attribute Catalogue/use of the Object Catalogue. A demonstration of the ECDIS display, to highlight the display problems when mandatory values are not known.

Exercise: Practical exercise - Using the Attribute Catalogue.

Assessment: Tutor to check student answers against trainers list.

META Objects

Aims: Enable students to gain a basic understanding of META objects and their application.

Objectives: To demonstrate an understanding of META Objects within S – 57 by identifying and attributing META Objects within an ENC cell.

Training method: PowerPoint and Object Catalogue.

Exercise: Identification of META Objects.

Assessment: Tutor to check student answers against trainers list.

Lights and Light Supports (including Light Sectors)

Aims: Enable students to encode Light features

Objectives: To apply correct object classes and attributes to Light Supports and lights and fog signals, with reference to relevant publications and documentation.

Training method: PowerPoint and reference to INT 1; Object Catalogue; Use of the Object Catalogue; Attribute Catalogue; Lights Lists. dKart demonstration

Exercise: Understanding Lights and Light Supports in ENCs practical exercise

Assessment: Tutor to check student answers against trainers list.

Rocks Wrecks & Obstructions

Aims: Enable students to encode charted features

Objectives: To apply correct object classes and attributes to charted dangers

Training method: PowerPoint and reference to INT 1; Object Catalogue; Use of the Object Catalogue; Attribute Catalogue; dKart demonstration

Exercise: Understanding Rocks, Wrecks and Obstructions in ENCs practical exercise

Assessment: Tutor to check student answers against trainers list.

Group 1 Polygons/Depth Areas

Aims: Enable students to encode charted area features

Objectives: To identify and correctly attribute LNDARE, DEPARE and DRGARE Group One Polygons

To identify and correctly apply –h and Danger line values

Training method: PowerPoint and reference to INT 1; Object Catalogue; Use of the Object Catalogue; Attribute Catalogue; dKart demonstration.

Exercise: Capturing Group One Polygons practical exercise

Assessment: Tutor to check student answers against trainers list.

Textural & Pictorial Representation files

Aims: Enable students to encode Text and Pictorial files

Objectives: To demonstrate an understanding of Text Description and Pictorial representation files by identifying and encoding the charted information correctly.

Training method: PowerPoint and group discussion

Exercise: None

Assessment: Tutor to check student understanding through group discussion

ENC Production Quality Procedures

Aims: To introduce students to the requirement to have full audit control of ENC production.

Objectives: To explain the UKHO Quality management procedures.

Training method: PowerPoint and walk through Quality Procedure forms.

Exercise: None.

Assessment: Tutor to check student understanding through group discussion.

Validation of ENCs - IHO S58

Aims: Enable students to identify and understand errors and warnings on listings.

Objectives: To demonstrate an understanding of automated ERROR and WARNING listings and to access Cells to resolve problems

Training method: PowerPoint and dKart demonstration. IHO S-58

Exercise: None

Assessment: Tutor to check student understanding through group discussion

ANNEX E

BASIC ENC AND ENC PRODUCTION TRAINING COURSE

REFERENCE MATERIAL

Contents of CD ROM supplied to students.

Workbook

IHO Publications

S-32

S-52

S-57

S-58

S-61

S-62

S-65

S-66

S-100

UKHO Quality Procedures for the Production of ENC

IMO ECDIS Performance Standards

A817_20 (19)

MSC2064 (67)

MSC2086 (70)

MSC82_24 ANNEX 24

SOLAS Chapter V – Annex 14 – Electronic Charts

Hard copy material provided to each student

5011 – INT1 Chart Symbols and abbreviations

NP735 – IALA Buoyage

BA Chart 19000

S-57 Object Catalogue

S-57 Attribute Catalogue

S-57 Use of the Object Catalogue

S-57 Product Specification

ANNEX F

BASIC ENC AND ENC PRODUCTION TRAINING COURSE

COURSE ASSIGNMENTS

STUDENT RESULTS

Student	Chart & ECDIS awareness Week One	ENC Awareness Week Two	Overall Course Score
Hugh Mack	40	69	55
Albert Peter	52	48	50
Juan Blanco	44	61	53
Javier Diaz	72	82	77
Rafael De Leon Granados	52	58	55
Cynthia Edwards	88	82	85
Mark Fisher	72	59	66
Derrick McLennon	64	75	69
Luis Morales Merida	68	71	70
Francois Mitton	53	47	50
Cliftian Samidin	68	51	60
Makardajh Surujupaul	80	61	71
Henry Tomlinson	68	65	67
Christy Warmoen	76	77	77
David Robin	76	83	80
Course Average score (%)	64	65	

ANNEX G

BASIC ENC AND ENC PRODUCTION TRAINING COURSE

STUDENT UKHO SURVEY RESULTS

	Strongly Agree	Agree	Disagree	Strongly Disagree	Total
Course content					
The information covered on the course was new to me?	4	9	2		15
The course content well organised	8	7			15
The course content too elementary	3	3	7	2	15
The balance between presentations and exercises was satisfactory	7	7		1	15
The Workbook was very usable	10	4	1		15
ECDIS and ENC demos were helpful	6	8	1		15
Course domestics					
The training room was appropriate for the course	3	11	1		15
The breaks were the right length	9	6			15
The presentation screen was clearly visible	7	7	1		15
Instructors					
The instructors were easily understood	9	6			15
The instructors were helpful	12	3			15
The instructors were fully prepared	13	2			15
The instructors listened and answered all questions	12	3			15
Personal Outcomes					
I understand my role and responsibility within the hydrographic field	5	10			15
I have a much better understanding of the navigational charts	9	6			15
I have a clearer understanding of electronic charting and implications of ECDIS mandation	7	8			15
I believe the course was well worth my time and met my requirements	11	4			15

Comments included to following questions

What needed improving on the course?

The course for two weeks is very short, I think it must be a month
The time allotted for the delivery of the information was too short considering the amount of areas to be covered
More hands on exercises
The total time allocated for the course could have been longer in order to allow for more hands on experience (especially with capturing the data)
More practical ECDIS training and demo on ENC preparation
Review or short quiz during week
All very good
More time needed on certain subject matter
Two weeks were not enough to fully understand the complexity of ENC and paper charts
More time to cover both topics. Presentations were variable – software demonstrations were a little blurry – the text was too small to read and follow. More exercises for ENC and symbols.
<u>Any other comments...</u>
Too short to cover topics
ENC component was mostly new
ENC was new – Good course overall
Instructors are experienced in their field work – questions were answered professionally

BASIC ENC AND ENC PRODUCTION TRAINING COURSE

STUDENT IMO SURVEY RESULTS

Report results supplied by Mr Colin Young – IMO Course Observer

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No.	Name	#5 Organization		#9 Receive Information		#10 Given Pre-Event Assignment		#11 Was Pre-Event Assignment Practical		Remarks	#12 Problems/	
		G	P	Yes	No	Yes	No	Yes	No		Yes	No
1	Hugh Mack	1		1			1					1
2	Albert Peter	1		1			1					1
3	Rafael Antonio De Leon Granados	1		1							1	
4	Luis Emilio Moralez Merda	1		1								1
5	Surujpaul Makardajh	1		1			1					1
6	Javier Diaz	1		1			1				1	
7	Cynthia Edwards	1			1		1					1
8	Henry Tomlinson	1		1			1					1
9	Ivan Benjamin Ivarez Blanco	1		1			1					1
10	Derrick Mc Lennon	1			1		1					1
11	Francois Serge Mitton	1			1		1					1
12	David Robin	1		1			1					1
13	Samadin Cliftian	1		1							1	
14	Cristy Warmoen	1		1							1	
15	Mark Fisher	1		1			1					1
15												
TOTAL		15	0	12	3	0	11	0	0		4	11
PERCENTAGES		100%	0%	80%	20%	0%	73%	0%	0%		27%	73%
NO RESPONSE												

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Difficulties - Applying for or Preparing to Attend	#13 What You Hope to Gain	#14 Suggestions for Improvement	
		Yes	No
Remarks	Remarks	Remarks	
	Additional knowledge about ENC		1
	Information on ENC		1
Ability to understand English	To learn about ENC		1
	Learn about ENC		1
	Learn about paper and ENC chart production		1
Unaware of the process for receiving DSA	Understanding of ENC		
	Learn more about ENC and ENC production		1
	Knowledge about ENC and its application		1
	Improve ability to produce charts		1
	To be aware of new developments		1
			1
	Understanding of ENC; its role in our Charting Authority; ENC production		1
Difficult flight schedule	to be able to produce ENC charts		1
Difficult flight schedule	To obtain requirements and cost to set up ENC for Suriname	1	
	Knowledge about ENC and its application		1
<hr/>			
		1	13
		7%	87%

No.	Name	Ken Blagdon												(#8) Observations on Performance of Lecturer(s)				
		Content				Present				Ability					Effect			
		E	G	S	P	E	G	S	P	E	G	S	P		E	G	S	P
1	Hugh Mack	1				1				1				1				
2	Albert Peter		1				1				1				1			High standard of delivery and information sharing
3	Rafael Antonio De Leon Granados		1			1				1								
4	Luis Emilio Moralez Merda	1				1				1				1				
5	Suruppaul Makardajh	1				1				1				1				
6	Javier Diaz	1				1				1				1				
7	Cynthia Edwards	1				1				1				1				
8	Henry Tomlinson	1				1				1				1				
9	Ivan Benjamin Ivarez Blanco	1				1				1				1				
10	Derrick Mc Lennon	1				1				1				1				
11	Francois Serge Milton																	
12	David Robin	1				1				1				1				
13	Cliffian Samadin																	
14	Cristy Warmoen	1				1				1				1				
15	Mark Fisher		1			1				1				1				
15																		
TOTAL		10	3	0	0	12	1	0	0	12	1	0	0	10	2	0	0	
PERCENTAGES		77%	23%	0%	0%	92%	8%	0%	0%	92%	8%	0%	0%	83%	17%	0%	0%	
NO RESPONSE		2				2				2				3				
OVERALL %		Excellent =				86%				Satisfactory =				0%				

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No.	Name	#12 Expectations OK			#13 Objective Met			#14 Areas for Improvement			#15 Areas of Assistance from IMO		
		Yes	No	Remarks	Yes	No	Remarks	Yes	No	Remarks	Yes	No	Remarks
1	Hugh Mack	1		Showed the process for producing ENC charts	1			1			1		Follow-up course
2	Albert Peter	1		Provided a better understanding of ENC	1			1	More time		1		Additional training
3	Rafael Antonio De Leon Granados	1		Office in the process of doing sharing, helpful in understanding the process	1			1			1		
4	Luis Emilio Moralez Merda	1			1			1			1		
5	Surujpaul Makardjeh	1			1			1	Live EDIS demonstration		1		Training with ECDIS software
6	Javier Diaz	1			1			1			1		Follow-up to confirm learnings
7	Cynthia Edwards	1			1			1	Longer to allow more practicals		1		Follow-up courses
8	Henry Tomlinson	1		Had no prior knowledge, better appreciation now	1			1			1		More indepth training
9	Ivan Benjamin Ivarez Blanco	1			1			1	Assistance with developing charts for Nicaragua		1		Assisting maritime authority to meet international standards
10	Derrick Mc Lennon	1			1			1	More frequent		1		
11	Francois Serge Milton												
12	David Robin	1			1			1			1		Higher level of technical training for survivors/hydrographers
13	Cliffian Samadin	1		More than expected	1			1			1		Have more countries attend
14	Cristy Wamoen		1		1			1			1		training in cartography, ENC and support to set up and maintain quality in ENC production
15	Mark Fisher	1		Better understanding of paper charts and ENC	1			1	Reference material should include charts of the Region		1		Assistance to set up ENC production
16													
TOTAL		12	1		14	0		7	7		11	3	
PERCENTAGES		93%	7%		100%	0%		50%	47%		79%	20%	
NO RESPONSE		1			1			1			1		
OVERALL %													

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No.	Name	#9) Topics of Interest		#10) Topics to Add			#11) Pre-Event Assignments		
		Most	Least	Yes	No	Remarks	Yes	No	Remarks
1	Hugh Mack	History, role & responsibilities of IHO, introduction to ENC, nav aids, History of ENC, Future of ENC		1		ENC on small vessels			
2	Albert Peter	Chart production, Navigational lights, Topography, IALA, Chart datum, Bearing & distances, ECDIS			1				
3	Rafael Antonio De Leon Granados	Data assessment, chart maintenance, group one polygons, depth and land areas		1		Translation from any digital draw to ENC/S or ECDIS. Source of software demo or free online software			
4	Luis Emilio Moralez Merda	All topics			1		1		
5	Surujpaul Makardjeh	Types of charts & chart users, Chart datum, horizontal depth selection, Units data assessment, Chart maintenance			1		1		
6	Javier Diaz	ENC geometry, topology, All			1				
7	Cynthia Edwards	Chart Datums, topography, ENC - Objects & attributes			1				
8	Henry Tomlinson	Using and producing charts, plotting, sounding and contouring			1				
9	Ivan Benjamin Ivarez Blanco	All			1				
10	Derrick Mc Lennon								
11	Francois Serge Milton								
12	David Robin	ENC production guide as it relates to S65			1			1	
13	Cliffian Samadin	Source material and chart maintenance		1			1		
14	Cristy Wamoen	ENC	Text	1		ENC software training	1		
15	Mark Fisher	Object attributes, Projections, use of ECDIS, Chart datums							
16									
TOTAL				4	7		4	1	
PERCENTAGES				36%	47%		80%	7%	
NO RESPONSE				4			10		
OVERALL %									

ANNEX H

BASIC ENC AND ENC PRODUCTION TRAINING COURSE

ACRONYMS

SIDS - Small islands developing States
LDCs - least developed countries
ENC – Electronic Navigational Chart
UKHO – United Kingdom Hydrographic Office