CHRIS16-5.2C

16th CHRIS MEETING
Ottawa, Canada, 28-31 May 2004

MAINTENANCE OF THE GLOSSARY OF ECDIS RELATED TERMS, S-52 APP 3

Submitted by:	IHB
Executive summary:	Following publication in 1997 of the 3rd edition of S-52 Appendix 3 "Glossary of ECDIS-related Terms", the then Glossary WG of CHRIS was disbanded. Although the possible taking over by the IHO Committee on S-32 "Hydrographic Dictionary", of the future maintenance of this publication, was discussed at subsequent CHRIS meetings, the matter has remained unresolved so far. A process to transfer this responsibility to the S-32 Committee has been proposed by its Chairman and is described in his letter to the Chair of CHRIS, which is reproduced below.
Actions to be taken:	See paragraph 4
Related documents:	CHRIS16-5.2A

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Chairman of CHRIS
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IHB File N°S3/7050 23 February 2004

Reference: Discussion Huet (PAC) (Secretary to CHRIS) – Shipman (PAH) (Chairman S-32 Committee) on 11 February 2004

Dear Ole,

1. I am writing with respect to the maintenance of The Glossary of ECDIS Related Terms, S-52 App 3 – 3rd Edition 1997, a matter, which appears to have lain unresolved for some time! The situation as far as I can determine is as follows:

- In 1998, Admiral Guy, as Chairman of Chris, wrote to Hans-Peter Rohde, Chairman of the Dictionary Working Group, as it was then called, requesting the Dictionary WG to take over the maintenance of S-52 App 3.

- After the 7th meeting of the Dictionary WG in May 1999 Hans-Peter Rohde wrote to Admiral Guy indicating that the Dictionary WG could only take on the task of maintaining S-52 App3 from within S-32 i.e. they were not in a position to maintain 2 publications.

- There then appears to be no further communication. However the minutes of the 8th meeting of the renamed Committee on the Hydrographic Dictionary in May 2001state that:

  > *Information has now been received from the CHRIS Chairman saying that the Glossary must be maintained as a separate publication as it figures in the IMO Performance Standards for ECDIS. Therefore, the options are that the Glossary will be maintained by CHRIS or by a sub-group of the S-32 Committee. This issue will be discussed during the next CHRIS meeting.*

- No record of a discussion on this topic can be found in subsequent minutes of CHRIS meetings.

2. Having discussed this matter with Michel Huet, I believe that in these days of digital data it should be possible to maintain S-52 App 3 as a separate publication and to 'flag' those S-52 App 3 definitions within S-32, such that should the definitions in S-32 change we will know that we have to change S-52 App 3.

3. Before such a process could begin, decisions have to be taken as to how to reconcile the current discrepancies between the two documents. At the time of the original proposal to incorporate S-52 App 3 into S-32 Erich Frey, a member of the Dictionary WG made a detailed review of all the terms in S-52 App 3 and proposed the actions for their incorporation. A copy of these proposals is at Annex A.

4. It is requested that CHRIS:

- Comment on the approach suggested in paragraph 2.
- Review the proposals in Annex A.
- If preferred propose an alternative way ahead.

With best wishes

On Behalf of the Directing Committee,
Yours Sincerely,

Steve Shipman
PA Hydrography
Chairman – Committee on the Hydrographic Dictionary

Annex A: Integration of the ECDIS Glossary into S-32

Integration of the ECDIS Glossary into S-32

As a first step for the integration of the ECDIS Glossary into S-32, a number of assumptions were made. They are as follows:

1. First there are a number of terms which are common to both reference documents and have basically the exact same definition.

2. There are a number of terms common to both documents referring to the same usage, but with different definitions. These require resolution and the table contains a proposed solution.

3. There are terms which are common to both documents, but have very different usage and very different meaning. Both usages need to be addressed and the table contains a proposed solution.

4. There are a number of new terms which are specific to ECDIS usage. Although there are a few which are not recommended for inclusion in S-32, it is assumed that in general, all terms in the ECDIS Glossary are to be covered in S-32. Therefore there will be a number of references in the definitions such as "In ECDIS, ..." This introductory phrase "In EDCIS" which is used throughout the following table is considered to mean the same as "In digital data" which is now used in many instances in S-32..

5. Explanatory notes in the EDCIS Glossary are very specific and are not considered necessary for inclusion in S-32.

6. The text in the "Proposed Definition" column is the actual text being proposed. Any text in parentheses is merely explanatory for our review purposes and not part of the definition.

The following table lists all the terms in S-52, the ECDIS Glossary in column 1, makes note of whether it is already included in S-32 or if it is new to S-32 in column 2, a proposed revised definition in column 3, and comments in column 4. There are some terms in the ECDIS Glossary which are listed, but are not recommended for inclusion in S-32. These are denoted with an asterisk in the second column

It should be noted that the ECDIS Glossary made use of italics to identify a term used in a definition, whereas S-32 used capital letters. In the proposed definition, Capital Letters were use for consistency with S-32.

Quick Statistical Summary
on the
Integration of the ECDIS Glossary into S-32

The ECDIS (S-52) Glossary contains 262 entries, not all of which were terms as such. Some of them were in fact acronyms rather than terms and others were descriptions of IHO working groups. These entries were generally **not recommended** for inclusion in S-32. The following statistics are based on the recommendations noted in the table.

Of the 262 terms in the ECDIS Glossary, 71 were already included in S-32. But only 32 terms/definitions have been taken from S-32.

A total of 152 new terms/definitions are recommended to be integrated into S-32, with 85 terms/definitions directly from the ECDIS Glossary. In a few instances definitions from both the existing S-32 and the ECDIS Glossary were recommended for inclusion. This was generally the case when a term had two distinct uses (e.g. chain).

In addition, another 31 terms/definitions are recommended to be integrated into S-32 but with the opening phrase "In ECDIS," (followed by the S-52 definition) in order to make note that it has special applications in the digital cartographic environment.

Finally, even though an attempt was made to integrate all the terms of the ECDIS Glossary (S-52) into S-32, a total of 39 terms/definitions (which in some instances were acronyms and in other cases not true definitions) were **not recommended** for integration into S-32. The reasons vary, but are generally because they were not truly definitions. In some cases, they were names of "working groups" or acronyms. However any acronym considered appropriate was recommended for inclusion in the S-32 listing of acronyms.

TERMS: The list of terms are from S-52.
N/E: N = term from S-52 which is "new" to S-32, E = term from S-52 which already exists in S-32
PROPOSED DEFINITION = revised definition proposed for inclusion in S-32
COMMENTS = explanation as to the reasoning of the proposed action

TERM (from ECDIS Glossary)	N/E	PROPOSED DEFINITION	COMMENTS
accuracy	E	(same as in S-32)	
aid to navigation	E	visual, acoustical, or radio device designed to assist in determining a safe course or a vessels' position, or to warn of dangers and/or obstructions. Aids to navigation usually include BUOYS, BEACONS, FOG SIGNALS, LIGHTS, RADIO BEACONS, LEADING MARKS, radio position fixing systems, GPS which are usually charted in the interest of safe NAVIGATION	The first part of this definition is from S-52 and originated with Bowditch. The second part is from S-32.
AIS	N		Add to Acronym section of S-32
alarm	N	a device or system which alerts by audible means, or audible and visual means, a condition requiring attention	Adapted from S-52 and originating with the Performance Standards
all other information	N	used in ECDIS to describe information not belonging to the STANDARD DISPLAY, Also called "ON-DEMAND INFORMATION".	Adapted from S-52.
application profile	N	used in ECDIS in reference to data structure. An application profile id defined for a specific purpose, such as the transfer of ENC DATA.	Adapted from S-52 (Ref IHO Transfer Standard)

applier	N	used in ECDIS for an ENTITY controlling the application of the UPDATE INFORMATION, e.g. the mariner keying in update information, or software inside ECDIS automatically processing the ENC update information.	Directly from S-52, except for the "used in ECDIS for" introduction
area	E	the 2-dimensional GEOMETRIC PRIMITIVE of an OBJECT that specifies location. In United Nations Law of the Sea terminology the sea-bed and ocean floor and subsoil thereof, beyond the limits of National jurisdiction	This term serves two purposes. The first definition is directly from S-52. The second definition is directly from S-32. It is proposed that both definitions be included.
ARPA	N		Add to Acronym section of S-32
attribute	N	a characteristic of an OBJECT, usually of a charted feature. In ECDIS, it is implemented by a defined ATTRIBUTE LABEL/CODE, acronym, definition and applicable values. In the DATA STRUCTURE, the attribute is defined by its LABEL/CODE. Attributes are either qualitative or quantitative.	Adapted from S-52 (Ref IHO Transfer Standard)
attribute label/code	N	In ECDIS, a fixed length numeric label or a 2-byte unsigned integer code of an ATTRIBUTE.	Adapted from S-52 (Ref IHO Transfer Standard)
attribute value	N	See ATTRIBUTE LABEL/CODE	Directly from S-52
Automatic Identification System	N	In ECDIS, an automatic communication and identification system intended to improve the safety of navigation by assisting the efficient operation of vessel traffic services, (VTS), ship reporting, and ship-to-ship and ship-to-shore operations.	Directly from S-52, except for the "In ECDIS" introduction.

automatic updatin(g)	N	In ECDIS, either the SEMI-AUTOMATIC or the FULLY AUTOMATIC means of updating the ENC/SENC.	Directly from S-52, except for the "In ECDIS," introduction.
Automatic Radar Plotting Aid (ARPA)	N	A system wherein radar targets are automatically acquired and tracked and collision situations computer assessed and warnings given.	Directly from S-52.
azimuth	E		Use existing S-32 definition
back-up arrangement	N	In ECDIS, facilities enabling safe take-over of ECDIS functions and measures facilitating means for safe navigation of the remaining part of the voyage in case of ECDIS failure.	Directly from S-52, except for the "In ECDIS," introduction. (Ref: Performance Standard)
base data	N	In ECDIS, the S-57 conforming data at the data producer's site that does not contain any UPDATE RECORDS. Once this data is exchanged, it becomes TARGET DATA at the APPLIER's site.	Directly from S-52, except for the "In ECDIS," introduction. (Ref: Transfer Standard)
bearing (BRG)	E		Use existing S-32 definition.
block correction	E	(same as in S-32)	
cartographic object	N	In ECDIS, a FEATURE OBJECT which contains information about the cartographic representation (including text of real world ENTITIES.	Directly from S-52, except for the "In ECDIS," introduction. (Ref: Transfer Standard)
cautionary note	E	(same as in S-32)	
cell	N	In ECDIS, the basic unit for the distribution of ENC DATA covering a defined geographical area bounded by two meridians and two parallels, the content of which must not	Directly from S-52, except for the "In ECDIS," introduction.

		exceed 5 Mbytes, and which is intended for a particular NAVIGATIONAL PURPOSE.	
chain	E		Use existing S-32 definition. The only existing difference is the use of the term “edge” as opposed to “segment”
chain node	N	In ECDIS, the data structure in which the geometry is described in terms of EDGES, ISOLATED NODES and CONNECTED NODES. Edges and connected nodes are topologically linked. NODES are explicitly coded in the DATA STRUCTURE.	Directly from S-52, except for the “In ECDIS,” introduction. (Ref: Transfer Standard)
chart amendment patch	N	see CHARTLET	Directly from S-52.
chart cell	N	see CELL	Directly from S-52.
chart information	N*		Not recommended for S-32.
chart datum	E	(almost same as S-32)	Use existing S-32 definition.
chart	E	(almost same as S-32)	Use existing S-32 definition.
chart symbol	E	(same as S-32)	
chartwork	N*		Not recommended for S-32.
CHRIS	N*		Not recommended for S-32
C.I.E. colour system	N	colour specification system established by the Commission Internationale de l’Eclairage, which permits a replicable	Directly from S-52.

		description of any colour on any equipment; in contrast with other colour schemes, which are apparatus specific. Colour is usually expressed in terms of the x and y chromaticity coordinates for the widely used chromaticity diagram, and a third dimension Y representing the luminance (perceived as brightness) of the light in candela per square meter (cd/m²). C.I.E. colour coordinates can be transformed into RGB coordinates of a calibrated CRT.	
clarification section	N*		Not recommended for S-32.
clutter	E	excess information or noise data on a DISPLAY or CHART, reducing legibility, confused unwanted ECHOES on a radar display	Although similar, this term serves two purposes. The first definition has been adapted from S-52. The second definition is directly from S-32. It is proposed that both definitions be included.
coastal warning	N	a NAVIGATIONAL WARNING promulgated by a national co-ordinator covering a coastal region or portion thereof	Directly from S-52.
collection object	N	a FEATURE OBJECT describing the RELATIONSHIP between other OBJECTS.	From S-52. (Ref Transfer Standard)
colour calibration	N	in order to reproduce the IHO colours for ECDIS, a colour calibration at the monitor must be performed to transform the CIE-specified colours for ECDIS into the colour coordinate system of the screen. Calibration will ensure correct colour transfer at the time a DISPLAY leaves the manufacturer's plant.	Directly from S-52, with last sentence removed.

Colour differentiation test diagrams	N	screen diagrams supplied in the PRESENTATION LIBRARY for use by the mariner to check brightness and contrast settings and to find out whether the screen still has the capability of distinguishing the important colours.	Directly from S-52.
colour fill	N	the use of colour to fill the interior area of a chart symbol to make it more readily recognizable, method of distinguishing different area features by filling areas with colour. "Transparent" colour fill is used to allow information to show through the fill, e.g., soundings in a traffic separation zone.	The first definition is new to both references. It was added to differentiate from the second definition, which is directly from S-52, and deals with ECDIS applications.
Colour tables	N*		Not recommended for S-32. It is not really a definition.
colours for ECDIS	N*		Not recommended for S-32. It is not really a definition.
Committee on ECDIS (COE)	N		Add to Acronym section of S-32.
Committee on Exchange of Digital Data (CEDD)	N		Add to Acronym section of S-32.
Committee on Hydrographic Requirements for Information Systems (CHRIS)	N		Add to Acronym section of S-32.

compilation	E	In CARTOGRAPHY, the selection, assembly, and graphic presentation of all relevant information required for the preparation of a MAP or CHART, or a NEW EDITION thereof. Such information may derived from other MAPS/CHARTS, AERIAL PHOTOGRAPHS, SURVEYS, new DATA, and other sources. In PHOTOGRAMMETRY, the production of a MAP (or portion of a MAP) from AERIAL PHOTOGRAPHS and geodetic control data, by means of photogrammetric instruments. Sometimes called *stereocompilation.*	This is a compromise between the two sources. The first part is directly from S-52 and is considered a slight improvement. That is supplemented with the second part from S-32.
compilation scale	N	the SCALE at which the ENC DATA was compiled.	Directly from S-52.
compilation update	N	The CORRECTION INFORMATION which has been issued since the last new edition of the ENC or since the last OFFICIAL UPDATE applied to the SENC, compiled into a single, comprehensive ENC UPDATE.	Directly from S-52.
conditional symbology procedure	N*		Not recommended for S-32.
Connected node	N	A NODE referred to as a beginning and/or end node by one or more EDGE. Connected nodes are defined only in the CHAIN-NODE, PLANAR GRAPH and FULL TOPOLOGY data structures	Directly from S-52. (Ref: Transfer Standard)
correction information	N	See UPDATE INFORMATION	Directly from S-52.
Correction(s)	E		Use existing S-32 definition. S-32 uses the singular while S-52 uses the

			plural.
Corrections section	N*		Not recommended for S-32. (Not really a definition)
corrupted data	N	In ECDIS, any change in introduced during, and as a result of, its transmission	Directly from S-52, except for the "In ECDIS," introduction.
Course	E		Use existing S-32 definition. The S-32 definition includes the existing S-52 definition.
Course made good (CMG)	E		Use existing S-32 definition. The S-32 essentially includes the S-52 definition.
Course over ground (COG)	E		Use existing S-32 definition. The S-32 essentially includes the S-52 definition.
Course up display	N	In ECDIS, the information shown on the DISPLAY (radar or ECDIS) with the direction of the vessel's course upward. The display ORIENTATION is stabilized by means of a gyro until a new course direction is fed in	Directly from S-52, except for the "In ECDIS," introduction.
Cumulative update	N	In ECDIS, the collection of all sequential CORRECTION INFORMATION which has been issued since the last new edition of the ENC or since the last OFFICIAL UPDATE applied to the SENC	Directly from S-52, except for the "In ECDIS," introduction.
Cursor-pick	N	In, ECDIS, the process of querying a point-symbol. Line or area for further information from the data base which is not	Directly from S-52, except for the "In ECDIS," introduction.

		represented by the SYMBOL	
Data dictionary	N*		Not recommended for S-32. (Not really a definition)
data model	N	a conceptual specification of the sets of components and the RELATIONSHIPS among the components pertaining to the specific phenomena defined by the model reality. A data model is independent of specific systems or DATA STRUCTURES.	From S-52 without the references to S-57
data quality indicator	N*		Not recommended for S-32. (Not really a definition)
data set	E		Use existing S-32 definition. (S-52 is too specific and limiting with references to S-57)
data structure	N	a computer interpretable format used for storing, accessing, transferring and archiving data	Directly from S-52
datum (geodetic)	E	(same as S-32)	
Datum (vertical)	E	(same as S-32)	
degradation	N*		Not recommended for S-32
Differential GLONASS	N	see GLONASS	
differential GPS	E		Use S-32 definition (S-52 definition merely refers to GPS)

differential system	N	See DIFFERENTIAL MODE	Differential mode is defined in S-32 and almost identical to the existing S-52 definition
digital terrain model	E	(same as S-32)	
digitizing conventions	N	See ENCODING CONVENTIONS	Directly from S-52
display	E	(same as S-32)	
display base	N	See DISPLAY CATEGORY	Directly from S-52
display category	N	In ECDIS, three categories for SENC objects are established in the ECDIS PERFORMANCE STANDARDS: **display base**: permanently retained on the display **standard display**: displayed at switch-on, recalled by single operator action, **ALL OTHER INFORMATION**: displayed individually (by class) on demand	Adapted from S-52. Consider breaking up into three separate definitions.
Display generator	N	ECDIS manufacturer software which takes an OBJECT from the SENC, assigns a symbol and colour, and presents it appropriately on the DISPLAY, using the tools and procedures provided in the PRESENTATION LIBRARY	Slight revision from S-52
display priority	N	In ECDIS, detailed rules to decide which line or point SYMBOL is to be shown when two OBJECTS overlap. Priority 2 overwrites 1. Display priority is given in the LOOK-UP TABLE	Directly from S-52, except for the "In ECDIS," introduction.

Display priority for radar	N*		Not recommended for S-32
display priority layer	N	In, ECDIS, layers to establish the priority of information on the DISPLAY. Lower priority information must not obscure higher priority information	Directly from S-52, except for the "In ECDIS," introduction.
Display scale	N	the ratio between a distance on the display and a distance on the ground, normalised and expressed for example 1/10,000 or 1:10,000	Directly from S-52.
Drawing sequence	N	the implementation of DISPLAY PRIORITY	Directly from S-52.
DX90-format	E		Use S-32 definition
ECDIS Chart 1	N	An ECDIS version of IHO INT 1, including all SYMBOLS, linestyles and colour coding used for chart and navigation symbols, contained in the PRESENTATION LIBRARY	Directly from S-52
edge	E	In TOPOGRAPHY, the CREST of a sharply pointed RIDGE In ECDIS, a one-dimensional SPATIAL OBJECT, located by two or more coordinate pairs (or two CONNECTED NODES) and optional interpolation parameters. If the parameters are missing, the interpolation is defaulted to straight line segments between the coordinate pairs. In the CHAIN-NODE, PLANAR GRAPH and FULL TOPOLOGY data structures, an edge must reference a connected node at both ends and must not reference any other NODES	Both S-32 and S-52 definitions are used since both terms are used, but refer to very different uses.

Electronic chart	E	In general, any data, software, and electronic system, capable of displaying CHART INFORMATION which may or may not be equivalent to official charts required by SOLAS.	Adaptation of S-52 definition
electronic chart data base (ECDB)	N	In ECDIS, the master data base for ELECTRONIC NAVIGATIONAL CHART DATA (ENCD), held in digital form by the national hydrographic authority, containing CHART INFORMATION and other nautical and hydrographic information.	Directly from S-52, except for the "In ECDIS," introduction.
Electronic Chart Display and Information System (ECDIS)	E	a navigation information system which with adequate BACK-UP ARRANGEMENTS can be accepted as complying with the up-to-date chart required by regulation V/20 of the 1974 SOLAS Convention, by displaying selected information from a SYSTEM ELECTRONIC NAVIGATIONAL CHART (SENC) with positional information from navigation sensors to assist the mariner in ROUT PLANNING and ROUTE MONITORING, and if required display additional navigation-related information	Directly from S-52 (Ref Performance Standard)
Electronic Chart Systems (ECS)	N	generic term for equipment which displays chart data but which is not intended to comply with the IMO PERFORMANCE STANDARD FOR ECDIS, and is not intended to satisfy SOLAS Chapter V requirement to carry a navigational chart.	Directly from S-52
electronic navigational chart (ENC)	E	(same as S-32. S-32 definition covers the existing S-52 definition)	

Electronic Navigational Chart Data (ENCD)	N	the national data for an ELECTRONIC NAVIGATIONAL CHART (ENC) in a format acceptable to an ENC Coordinator.	Directly from S-52
Electronic Navigational Chart Data Base (ENCDB)	N	the master data base for production and maintenance of the ENC, compiled from national ENC DATA (ENCD)	Directly from S-52
ENC	N		Add to Acronym section of S-32
ENC cell structure	N	See CELL	Directly from S-52
ENC data	N	See ELECTRONIC NAVIGATIONAL CHART DATA (ENCD)	Directly from S-52
ENC product specification	N	Appendix B-1 of S-57 which specifies the content, structure and other mandatory aspects of an ENC	Directly from S-52
ENC test data set	N*		Not recommended for S-32
encapsulation	N	the identification of FIELDS and RECORDS and the grouping of fields and records and the data syntax rules used	Directly from S-52
encoding conventions	N	a set of rules to be followed when encoding data for a particular purpose.	Directly from S-52
Enhanced Group Call (EGC)	N*		Not recommended for S-32
entity	N	any concrete or abstract thing of interest, including association of things	Directly from S-52

exchange format	N	a specification for the structure and organization of data to facilitate exchange between computer systems	Directly from S-52
exchange set	N	the set of FILES representing a complete, single purpose (i.e. product specific) data transfer. The ENC PRODUCT SPECIFICATION defines an exchange set which contains one Catalogue file and at least one data set file.	Directly from S-52 (Ref: Transfer Standard)
extension document	N*		Not recommended for S-32
face	N	a two dimensional SPATIAL OBJECT. A face is a continuous area defined by a loop of one or more EDGES which bound it. A face may contain interior holes, defined by closing loops of EDGES. These interior boundaries must be within the outer boundary. No boundary may cross itself or touch itself other than at the beginning/end NODE. None of the boundaries may touch or cross any other boundary. Faces are defined only in the FULL TOPOLOGY data structure.	Directly from S-52 (Ref; Transfer Standard)
feature	N	representation of a real world phenomenon	Directly from S-52 (Ref: ISO)
feature object	N	an OBJECT which contains the non-locational information about real world ENTITIES.	Directly from S-52 (Ref: Transfer Standard)
feature record	N	a feature record is the implemented term used in the S-57 data structure for a FEATURE OBJECT (i.e. a feature object as defined in the DATA MODEL is encoded as a feature record in the DATA STRUCTURE). There are four types of feature records: GEO, META, COLLECTION, and	Directly from S-52 (Ref: Transfer Standard)

		CARTOGRAPHIC.	
field	N	In ECDIS, a named collection of labeled subfield(s). For example, IHO ATTRIBUTE LABEL/CODE and IHO ATTRIBUTE VALUE are collected into a field named Feature Record Attribute.	Directly from S-52, except for the "In ECDIS," introduction.
File	E	an entity of data for a specific task or purpose stored on a mass storage device In ECDIS, an identified set of S-57 records collected together for a specific purpose. The file content and structure must be defined by a PRODUCT SPECIFICATION.	Both S-32 and S-52 definitions are used since both terms are used, but one is generic and the other specific to ECDIS.
Fully automatic updating	N	the application of corrections to ENC DATA in the SENC in a fully integrated state, without human intervention.	Directly from S-52.
Full topology	N	a 2-dimensional DATA STRUCTURE in which the geometry is described in terms of NODES, EDGES and FACES which are all TOPOLOGICALLY linked. A PLANAR GRAPH with faces.	Directly from S-52. (Ref: Transfer Standard)
generalization	E	(same as S-32)	
geo object	N	a FEATURE OBJECT which carries the descriptive characteristics of a real world ENTITY.	Directly from S-52. (Ref: Transfer Standard)
Geographic Information System (GIS)	E	(same as S-32)	

geometric primitive	N	one of the three basic geometric units of representation: POINT, LINE, and AREA	Directly from S-52. (Ref: Transfer Standard)
Global Maritime Distress and Safety System (GMDSS)	E	(same as S-32)	
Global Navigation Satellite System (GNSS)	N	a world-wide position, time and velocity radiodetermination system comprising space, ground and user segments of which GPS and GLONASS are components	Directly from S-52
GLONASS (Global Navigation Satellite System	N	a space-based, radio-positioning, navigation and time-transfer system operated by the Government of the Russian Federation. GLONASS to which differential corrections have been applied is known as Differential GLONASS (DGLONASS)	Directly from S-52
GPS (Global Positioning System)	E	a satellite-based navigation system designed to provide highly accurate positions and velocity information in three dimensions and precise time and time interval on a global basis continuously. GPS is operated by the United States Government. GPS to which differential corrections have been applied is known as DIFFERENTIAL GPS (DGPS)	This is a combination of the existing S-32 definition with the S-52 definition. (S-32 spells out the term whereas S-52 uses the acronym)
ground stabilization	N	In ECDIS, a display whereby own ship position is referenced to the ground. Usually performed in conjunction with radar/ARPA, it can be determined by computing set and drift or by the use of GPS/DGPS	Directly from S-52, except for the “In ECDIS,” introduction.
Harmonization Group on ECDIS	N*		Not recommended for S-32

(HGE)			
heading	E	the direction in which a vessel or craft is pointed, expressed as an angular distance from NORTH clockwise through 360 DEGREES	Suggest this revised definition, mostly from S-52, but very similar to the S-32 definition
head-up display	N	information shown on a display in such a fashion so that the vessel's HEADING is always pointing upward. This ORIENTATION corresponds to the visual view from the bridge in the direction of the ship's heading. This orientation may require frequent rotations of the display contents. Changing the ship's course, or yawing of the vessel may render this unstabilized orientation mode unreadable. (See COURSE-UP DISPLAY)	Almost directly from S-52 with only minor editorial revisions.
HO-information	N	In ECDIS, the information content of the SENC originated by hydrographic offices. It consists of the ENC content and UPDATES to it.	Directly from S-52, except for the "In ECDIS," introduction.
identifier	N	See OBJECT IDENTIFIER	Directly from S-52
IEC	N		Add to Acronym section of S-32
IHO INT 1	N	reference publication of the IHO containing chart symbols abbreviations and terms	Extensively revised version of S-52 definition
IHO Transfer Standard for Digital Hydrographic Data	N	a THEORETICAL DATA MODEL, DATA STRUCTURE, OBJECT CATALOGUE, ENC PRODUCT SPECIFICATION, USE OF THE OBJECT CATALOGUE foe ENC and an Object Catalogue DATA DICTIONARY Product Specification for use in the exchange or transfer of	First part directly from S-52 with additional explanation.

		digital hydrographic data.	
IHO test data set	N*		Not recommended for S-32
indication	N*		Not recommended for S-32
indicator	E		Use S-32 definition. (The S-52 definition is rather simplistic and self explanatory)
information from other sources	N*		Not recommended for S-32
INMARSAT	E	(already included as acronym in S-32)	
INT 1	N	See IHO INT 1	Directly from S-52
International Electrotechnical Commission (IEC)	N	a non-governmental organization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote standardization and international cooperation on all questions concerning standardization in the electricaland electronic fields	Slight adaptation of the S-52 definition
International Hydrographic Organization (IHO)	E	(Same as S-32)	
International Maritime Organization (IMO)	E	a specialized agency of the UNITED NATIONS responsible for measures to improve the safety of international shipping and to prevent marine pollution from ships (formerly called IMCO)	Directly from S-52 whose source was the IMO. Suggest this definition be used to replace the S-32 definition

ISO 8211	N*		Not recommended for S-32. The reason is that there will constantly be more ISO's which will have to be considered.
ISO 10646	N*		Not recommended for S-32. The reason is that there will constantly be more ISO's which will have to be considered.
Isolated node	N	an isolated zero-dimensional SPATIAL OBJECT that represents the geometric location of a point FEATURE. An isolated node is never used as a beginning or end NODE.	Directly from S-52 (Ref: Transfer Standard)
Issuing Authority	N	the official agency which issues nautical chart and updates including ENC's and ENC UPDATES.	Mostly from S-52, but adapted to include paper medium.
Key	E		This term is already in S-32, but totally different from the term as used in S-52. Suggest that S-32 remain unchanged and the S-52 definition not be included.
label/code	N	See ATTRIBUTE LABEL/CODE	Directly from S-52
layer	E		This term is already in S-32, but totally different from the term as used in S-52. Suggest that S-32 remain unchanged and the S-52 definition not be included.
		Each straight section of a TRAVERSE.	Use both S-32 and S-52 definitions.

leg	E	One part of a craft's TRACK consisting of a single COURSE line. A line connecting two WAYPOINTS	(S-52 definition was simply added to existing S-32 definition)
line	N	a one-dimensional GEOMETRIC PRIMITIVE of an OBJECT specifying location	From S-52
List of Lights	E	(same as S-32)	
List of Radio Signals	E	(same as S-32)	
local datum	N	any geodetic reference DATUM defined for national or local purposes.	Adapted from S-52
local updates	N	a generic term used to indicate all update information other than OFFICIAL UPDATES, regardless of source; for application as a MANUAL UPDATE only as opposed to automatic updates in ECDIS	First part directly from S-52. Last phrase adapted from S-52 for clarification with respect to manual and/or automated methods.
Log file	N	a record of nautical chart updates, including time of application and identification parameters.	Adapted from S-52
look-up table	N*		Not recommended for S-32
maintenance document	N*		Not recommended for S-32
manual updating	N	the manual application of hand corrections to nautical charts; In ECDIS, the manual application of corrections to ENC DATA in the SENC by human operator, usually based on unformatted UPDATE INFORMATION (such as NtMs,	First part added to cover paper charts, Second part directly from S-52.

		voice radio, verbal communications, etc.)	
mariner's information	N	information originated by and added by the mariner; In ECDIS, the information is entered to the SENC, e.g. area of strong currents.	First part added to cover paper charts, Second part adapted from S-52.
mariner's navigational objects	N	features other than chart objects, such as the ownship symbol and velocity vector, planned route, bearing line, etc. in either manual or ECDIS mode	Adapted from S-52 to apply to both manual and electronic charts.
Maritime Safety Information (MSI)	E	(same as S-32)	
matrix	E		This term is already in S-32, but totally different from the term as used in S-52. Suggest that S-32 remain unchanged and the S-52 definition not be included.
meta object	N	a FEATURE OBJECT containing information about other OBJECTS	Directly from S-52
nautical chart	E	(same as S-32)	
Navarea	E	the short title for a geographical sea area in the WORLD-WIDE NAVIGATIONAL WARNING SERVICE established for the purpose of coordinating the transmission radio NAVIGATIONAL WARNINGS	A compromise using both S-32 and S-52 definitions
Navarea warning	N	a NAVIGATIONAL WARNING issued by the NAVAREA coordinator for its assigned area	Adapted from S-52

navigational aid	E	(same as S-32)	
navigational chart	N	See CHART	For consistency, we need to refer to the term “chart”
navigational information	N	the information contained in MARINER’s NAVIGATIONAL OBJECTS	Directly from S-52
navigational purpose	N	In ECDIS, the specific purpose for which a CHART CELL has been compiled. There are six such purposes; berthing, harbour, approach, coastal, general, and overview	Directly from S-52, except for the “In ECDIS,” introduction.
navigational symbol	N*		Not recommended for S-32
navigational warning	E	(same as S-32)	
Navtex	E		S-32 definition suggested
node	E	a zero-dimensional SPATIAL OBJECT, located by a coordinate pair. A node is either ISOLATED or CONNECTED. In ASTRONOMY, one of the.....	First part directly from S-52, replacing the first S-32 definition. The remainder of the S-32 definition is suggested to remain as is.
Non-chart symbol	N	a symbol for information such as own ship’s position, COURSE MADE GOOD, etc., which appears on the ECDIS but which does not appear on the printed chart. See MARINERS NAVIGATIONAL OBJECTS.	Directly from S-52.
non-HO information	N	In ECDIS, the information contained in the SENC provided by non-HO sources (MARINER’S INFORMATION or other sources outside Hos.	Directly from S-52, except for the “In ECDIS,” introduction.

north-up display	N	information shown on the display (radar or ECDIS) with the north direction upward. The north-up display corresponds with the usual ORIENTATION of the nautical chart.	Directly from S-52.
Notice to Mariners	E	(same as S-32)	
object	N	an identifiable set of information. An object may have ATTRIBUTES and may be related to other objects. See also SPATIAL OBJECT and FEATURE OBJECT	Directly from S-52.
Object Catalogue	N	a feature schema for S-57. Its primary function is to provide a description of real world ENTITIES. It contains a list of FEATURE OBJECT classes (each relating to a real world entity), ATTRIBUTES and allowable ATTRIBUTE VALUES	Directly from S-52.
object class	N	a generic description of OBJECTS which have the same characteristics.	Directly from S-52.
object description	N	the definition of which OBJECT CLASS a specific OBJECT belongs to.	Directly from S-52.
object identifier	N	the identification of a S-57 FEATURE OBJECT. The object identifier is the concatenation of the "Producing Agency", "Feature Identification Number" and "Feature Identification Subdivision" subfields. Within the context of this Standard the object identifier is referred to as the "long Name."	This is directly from S-52. But it is not very clear. In fact my instincts are not to include this in S-32. The only reason it is included is because a number of related terms (feature object, feature record, etc.) are included.

official HO data	N	See HO information	Directly from S-52
official updates	N	updates provided by the ISSUING AUTHORITY for application to a chart. In ECDIS the updates are provided in digital format by the ISSUING AUTHORITY of the ENC being corrected, for integration with the ENC DATA in the SENC.	A generic definition was developed for S-32. But a specific ECDIS application definition was also included.
on-demand information	N	In ECDIS, the SENC information which is not part of the standard display. See also ALL OTHER INFORMATION.	Directly from S-52, except for the "In ECDIS," introduction.
orientation	E	The act of establishing the correct relationship in direction with reference to the POINTS of the COMPASS. The state of being in correct relationship in direction with reference to the POINTS of the COMPASS. A MAP is in orientation when the map SYMBOLS are parallel with their corresponding ground features. A PHOTOGRAPH is in orientation when it correctly presents the perspective view of the ground or when IMAGES on the PHOTOGRAPH appear in the same direction from the point of observation as do the corresponding map symbols. See ORIENTATION OF PLANE TABLE, ORIENTATION OF SURVEYING INSTRUMENT, ORIENTATION: PHOTOGRAM-METRIC. In ECDIS, the mode in which information on the ECDIS is being presented. Typical modes include: **north-up** - as shown on a nautical CHART, north is at the top of the display; **Ship's head-up** - based on the actual HEADING of the ship, (e.g. Ship's gyrocompass); **course-up display** - based on the COURSE or ROUTE being taken	Both the S-32 and the S-52 definition are included. Both terms are used but have very different definitions.

Other chart information	N	See DISPLAY CATEGORY	Directly from S-52
other navigational information	N	In ECDIS, NAVIGATIONAL INFORMATION not contained in the SENC, that may be displayed by an ECDIS, such as radar information.	Directly from S-52, except for the "In ECDIS," introduction.
overscale	N	In ECDIS, to display the chart information at a DISPLAY SCALE larger than the COMPILATION SCALE. Overscaling may arise from a deliberate overscaling by the mariner, or from automatic overscaling by ECDIS in compiling a DISPLAY when the data included is of various NAVIGATIONAL PURPOSES.	Directly from S-52, except for the "In ECDIS," introduction.
overscale area	N	In, ECDIS, when the data displayed is from data of two different NAVIGATIONAL PURPOSES the chart display will, where drawn at the larger SCALE, include an overscale area of data from the smaller scale CELL in order to complete the DISPLAY. This area should be identified by the "overscale pattern" of the PRESENTATION LIBRARY.	Directly from S-52, except for the "In ECDIS," introduction.
own ship's safety contour	N	the contour related to the own ships selected by the mariner from the contours provided for in the SENC, to be used by ECDIS to distinguish on the DISPLAY between the safe and the unsafe water, and for generating anti-grounding ALARMS	Directly from S-52
own ship's symbol	N	a non-chart symbol used in ARPA and ECDIS to show the ship's position on the CHART or ARPA display.	Directly from S-52

own ship	N	term identifying the vessel upon which an ECDIS is operating.	Slight revision of S-52 definition.
Performance Standards for ECDIS	N	minimum performance requirements for ECDIS, adopted by IMO 23 November 1995 as Assembly resolution and published as Annex to IMO Resolution A19/Res 817 (15 December 1995).	Directly from S-52.
Pixel	E	(same as S-32)	
planar graph	N	a 2-dimensional data structure in which the geometry is described in terms of NODES and EDGES which are TOPOLOGICALLY linked. A special case of a CHAIN-NODE data structure in which edges must not cross. CONNECTED NODES are formed at all points where edges meet.	Directly from S-52. (Ref: Transfer Standard)
point	E	(same as S-32)	
polygon	E	(same as S-32)	
product specification	N*		Not recommended for S-32
precision	E	(same as S-32)	
presentation	N*		Not recommended for S-32.
Presentation Library	N	a set of mostly digital specifications, composed of SYMBOL libraries, colour schemes, LOOK-UP TABLES and rules, linking every OBJECT CLASS and ATTRIBUTE of the SENC to the appropriate presentation of the ECDIS DISPLAY.	Directly from S-52.

Raster	N	see RASTER DATA PRESENTATION	The S-52 definition is very technical whereas the suggested S-32 definition for “raster data presentation” seems more generic.
Raster data presentation	E	(same as S-32)	
record	N*		Not recommended for S-32.
Regional ENC Coordinating Centre (RENC)	N		Add to Acronym section of S-32.
relationship	N*		Not recommended for S-32.
relative motion display	N	In ECDIS, a DISPLAY in which OWN SHIP remains stationary, while all other charted information and targets move relative to own ship’s position. See also TRUE MOTION DISPLAY.	Directly from S-52, except for the “In ECDIS,” introduction.
RENC	N		Add to Acronym section of S-32.
resolution	E	capability of depicting detail, represented by the smallest distance apart at which two objects can be seen to be separate. The separation is called the RESOLVING POWER. In ECDIS, it is dependent on PIXEL size. The degree of ability of a radar set to indicate separately the echoes of two targets in range and bearing.	This is a combination of both S-52 and S-32. The first part of the definition is directly from S-52. A reference to ECDIS was added and the second part of the S-32 definition remains intact.

Route	N*		Not recommended for S-32. (Too generic)
route monitoring	N	In ECDIS, the operational navigational function in which the chart information is displayed, under control of the positioning sensor input, according to the vessel's present position (either in TRUE MOTION or RELATIVE MOTION DISPLAY mode.)	Directly from S-52, except for the "In ECDIS," introduction.
route planning	N	the pre-determination of COURSE, speed, WAYPOINTS and radius in relation to the waters to be navigated, and in relation to other relevant information and conditions.	Directly from S-52.
S-52	N*		Not recommended for S-32.
S-57	N*		Not recommended for S-32.
safety contour	N	See OWN SHIP's SAFETY CONTOUR	Directly from S-52.
Safety depth	N	the depth defined by the mariner, e.g. the ship's draft plus underkeel clearance, to be used by the ECDIS to emphasize soundings on the DISPLAY equal to or less than this value.	Directly from S-52.
Safetynet	N*		Not recommended for S-32.
sailing directions	E	Information published in book form describing COASTS, waters, CHANNELS, harbour facilities, etc., for use by mariners.	Use of existing S-32 definition is suggested. (Definition at left is from S-32).
Scale	E	(same as S-32)	
scale bar	N*		Not recommended for S-32. It is too

			confusing with “scale: bar” which is a term defined in S-32.
screen	E		This term is adequately defined in S-32
semi-automatic updating	N	In ECDIS, the application of CORRECTIONS to ENC DATA in the SENC updating in a fully integrated state, by hard media or telecommunications transfer in a manner which requires human intervention at the ECDIS interface.	Directly from S-52, except for the “In ECDIS,” introduction.
SENC	N	See SYSTEMS ELECTRONIC NAVIGATIONAL CHART	Directly from S-52.
simplified symbols	N	SYMBOLS designed specifically for ECDIS, for fast draw and to give the maximum clarity under all conditions of viewing the CRT. They are less complex than the equivalent paper CHART SYMBOLS.	Directly from S-52.
SOLAS	N		Add to Acronym section of S-32.
sounding datum	N	See DATUM: SOUNDING	Covered in S-32 as “datum: sounding”
spaghetti data	N	a DATA STRUCTURE in which all lines and points are unrelated to each other (i.e. no topological RELATIONSHIPS exist in the data structure)	Directly from S-52. (Ref: Transfer Standard)
spatial object	N	an OBJECT which contains locational information about real world ENTITIES.	Directly from S-52.
Spatial record	N*		Not recommended for S-32.

speed	E		This term is adequately defined in S-32
standard display	N	See DISPLAY CATEGORY	Directly from S-52.
Supplementary information	N	non-chart hydrographic office information, such as SAILING DIRECTIONS, TIDE TABLES, LIGHT LISTS.	Directly from S-52.
Symbol	E		This term is adequately defined in S-32
System Electronic Navigational Chart (SENC)	N	a data base resulting from the transformation of the ENC by ECDIS for appropriate use, updates to the ENC by appropriate means and other data added by the mariner. It is this data base that is actually accessed by ECDIS for the display generation and other navigational functions, and is equivalent to an up-to-date paper CHART. The SENC may also contain information from other sources.	Directly from S-52. (Ref: Performance Standard)
target data	N	In ECDIS, the data on which an UPDATE operation is performer by the APPLIER.	Directly from S-52, except for the "In ECDIS," introduction.
textual HO information	N	information presently contained in separate publications (e.g. SAILING DIRECTIONS) which may be incorporated in the ENC, and also textual information contained in explanatory attributes of specific objects.	Directly from S-52.
Time varying object	N	an OBJECT which has one or more ATTRIBUTES, the value or values of which vary with time.	Directly from S-52.
Topology	N	In. ECDIS, the set of properties of geometric forms (such as connectivity, neighbourhood) which is defined with the	Directly from S-52, except for the "In ECDIS," introduction.

		DATA MODEL remaining invariant when subject to a continuous transformation.	
track	E		This term is adequately defined in S-32
track keeping	N	sailing a ship in accordance with a pre-determined route, and in relation to the waters.	Directly from S-52.
Transfer Standard Maintenance and Application Development Working Group (TSMAD)	N*		Not recommended for S-32.
true distance	N	distance on the earth's surface, based on ellipsoid calculations.	Directly from S-52.
True-motion display	N	In ECDIS, a DISPLAY in which OWN SHIP and each target moves with its own true motion, while the position of all charted information remains fixed. See also RELATIVE MOTION DISPLAY.	Directly from S-52, except for the "In ECDIS," introduction.
TSMWG	N*		Not recommended for S-32.
underscale	N	the condition where data displayed are not the largest scale NAVIGATIONAL PURPOSE data available for that area.	Almost directly from S-52.
Update	N	See UPDATE INFORMATION. (Verb) applying the UPDATE MECHANISM. See also OFFICIAL UPDATES.	Slight adaptation of S-52.

Update information	N	In ECDIS, the data which are needed to update the TARGET DATA automatically. Update information comprises one or more UPDATE RECORDS.	Directly from S-52, except for the "In ECDIS," introduction.
update mechanism	N	In ECDIS, the defined sequence of update operations necessary to update the TARGET DATA by applying the UPDATE INFORMATION to the content of the TARGET DATA so that no operator interaction is involved.	Directly from S-52, except for the "In ECDIS," introduction. (Ref: Transfer Standard)
update record	N	generic term for FEATURE or SPATIAL RECORDS containing update instructions.	Directly from S-52.
Use of the Object Catalogue	N*		Not recommended for S-32.
vector	E	(same as S-32)	
vector data presentation	E	(same as S-32)	
voyage data recorder	N	a system that may be in the form of several separated but interconnected units, intended to maintain, in a secure and retrievable form, information concerning the position, movement, physical status, command and control of a vessel over a period leading up to, and following an incident. Sometimes referred to as Black Box.	Directly from S-52.
Warning	N	an ALARM or INDICATOR.	Directly from S-52.
Water stabilization	N*		Not recommended for S-32.
		in conjunction with ROUTE PLANNING, a geographical	

waypoint	N	location (e.g. latitude and longitude) indicating a significant event on a vessel's planned route (e.g. course alteration point, calling in point, etc.)	Directly from S-52.
WEND	N*		Not recommended for S-32.
window	E		Use existing S-32 definition, but add "See also DISPLAY"
World Geodetic System (WGS)	E	(same as S-32)	
Worldwide Electronic Navigational Chart Data Base (WEND)	N	a common, worldwide network of ENC datasets, based on IHO standards, designed specifically to meet the needs of international maritime traffic using ECDIS which conform to the IMO PERFORMANCE STANDARDS.	Directly from S-52.
World-Wide Navigational Warning System (WWNWS)	E	(same as S-32)	
zoom	E		Use existing S-32 definition.

Note:
* = denotes term is not recommended for inclusion in S-32.

THE USE OF ALL CAPITAL LETTERS = denotes that the word(s) or term(s) for which definitions are contained in S-32.

In summary, where there is either no entry or "(same as S-32)" in the "Proposed Definition" field, the proposal is to retain the S-32 definition. And if accepted, no further action is required