Introducing the Revolution in New Zealand Paper Chart Production

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Introduction to LINZ Hydrographic Services

LINZ Hydrographic Services Area of Responsibility
### Introduction to LINZ Hydrographic Services

- The authoritative provider of nautical charts and publications
- 180 paper charts in LINZ's paper chart portfolio.
- NZMariner New Zealand's official Raster Navigational Chart (RNCs) folio.
- Approx 60 Electronic Navigational Charts (ENCs) to date.
- Hydrographic Publications.

### Introduction

- Traditional paper chart production.
- ENC production.
- LINZ Hydrographic Services new approach. Producing official nautical charts and ENCs from a single source database.
- Worked example – First paper chart from the new system.
- Discuss the impact of the new approach, and the ongoing challenges faced.
Traditional Paper Chart Production and Maintenance

Traditional Paper Chart Production

- Paper charts produced using traditional cartographic tools or older legacy software.
- Compilation from a data pack of source material for the individual chart.
- Notices to Mariners.

ENC Production

- ENCs created and maintained using the paper chart as the source.
- Paper chart image is digitised and converted to S-57 vector format.
- Updates.

Traditional Paper Chart and ENC Production and Maintenance Model
Introducing the Single Source Database Approach

- CARIS Hydrographic Production Database (HPD) since July 2008.
- New approach at LINZ as the source data for all products is stored in a single database.
- Paper chart is created from the same source data as the ENC, thereby eliminating the duplication of data.
- Updates to the source are automatically available to the ENC and paper chart products.

The HPD Concept

\[ \text{S-57 Format Data} \rightarrow \text{HPD Database} \rightarrow \text{Paper Chart} \rightarrow \text{ENC} \]

Source Information

AutoCAD

Shape

TIF, etc.
LINZ HPD Single Source Database

- LINZ has captured and carried out quality control for the majority of the chart catalogue in S-57 format.
- Source data is stored in scale less and scale dependant usage bands.
- Once fully populated the database will be dynamic and maintained in either S-57 format or in a choice of other formats.
- Overall the database is a fully QC’ed quality, reliable and accurate single source database.

The Revolution in New Zealand Paper Chart Production

- S-57 data is made available from the source database to create the paper product.
- **A complete reversal of process - source-centric approach.**
- Within HPD, specialised software tools allow for the conversion of S-57 data model to the paper chart symbology (INT 1).
- Automated maintenance by comparing product to source.
Recap of the Traditional Paper Chart and ENC Production and Maintenance Model

New Chart/Edition Production:
- Datapack
- Paper Chart
- S-57 Conversion
- ENC

Maintenance:
- New Source Information
- Notice to Mariners
- S-57 Conversion
- Update

LINZ HPD Production Model

New Chart/Edition Production:
- Source Information
- HPD Database
- Product
- Paper Chart
- ENC
- Paper Chart Update
- ENC Update

Maintenance:
- New Source Information
- Compare/Update to Source
## Example of New Paper Chart Production from HPD

### Source Data

- NZ4315 Approaches to Onehunga October 2009
- Main Sheet 1:18000, Inset Plan 1:2500
- Source data captured and stored in HPD

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## Example of New Paper Chart Production from HPD

### Paper Chart Product

- S-57 Presented to meet IHO S-4 and INT 1 international charting standards.
- Cartographic features not stored in the database are added.
- Cartographic presentation, masking and checks carried out prior to publishing.
Example of New Paper Chart Production from HPD

- Detail

Impact and Challenges of the LINZ HPD Approach

- Realisation of the importance of the quality and completeness of the source database.

- Paradigm shift from *product-centric* to *source-centric*.

- Customisation of the HPD solution to meet LINZ's and IHO standards.

- Cartographic presentation remains a skilled and time consuming task.

- Still a requirement for greater capacity and resources.
Summary

- LINZ produce paper charts and electronic products from a single source database, thereby eliminating the duplication of source data.

- The database is a dynamic, quality, reliable and accurate single source database.

- New production method is complete reversal of the traditional process. Source-centric approach.

- Specialised software tools allow for the conversion of S-57 to the paper chart (INT 1).

- Paper chart production remains a skilled and lengthy process to ensure the chart meets strict international standards.

Lithographic Printing of Paper Charts from HPD

Lithographic printing of charts from HPD
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Many thanks.

Any Questions?

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