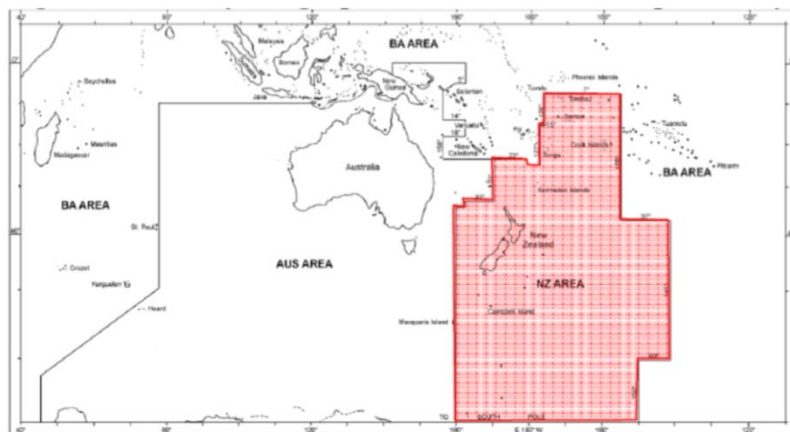# Introducing the Revolution in New Zealand Paper Chart Production

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The XXIV FIG International Congress 2010
11 - 16 April 2010
Sydney

Introduction to LINZ Hydrographic Services

LINZ Hydrographic Services Area of Responsibility
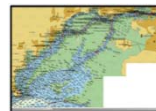

Introduction to LINZ Hydrographic Services

- 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.

Paper Chart

ENC

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
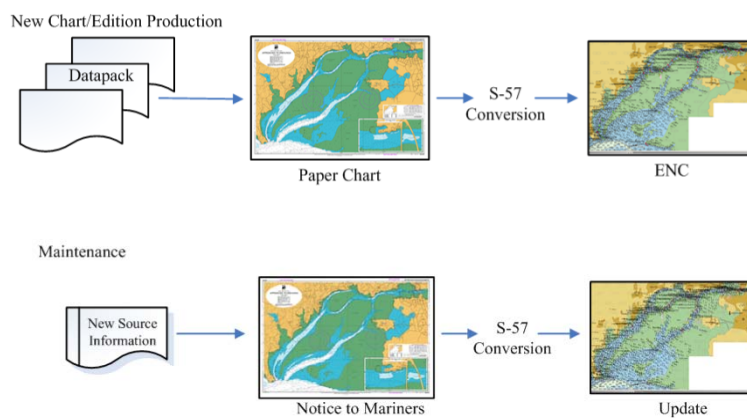
Traditional Paper Chart Production

- 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.

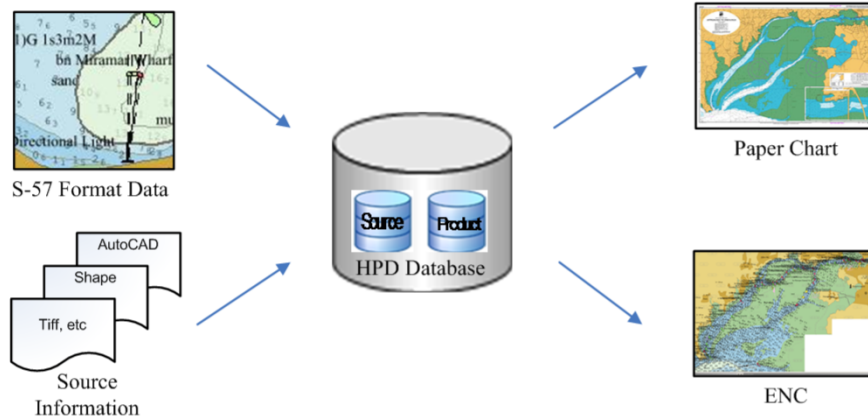## Traditional Paper Chart and ENC Production and Maintenance Model

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

S-57 Format Data

AutoCAD
Shape
Tiff, etc
Source Information

Source | Product
HPD Database

Paper Chart

ENC

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.
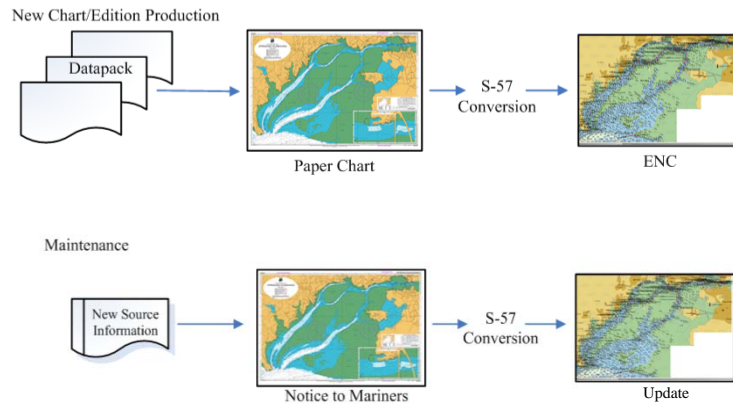
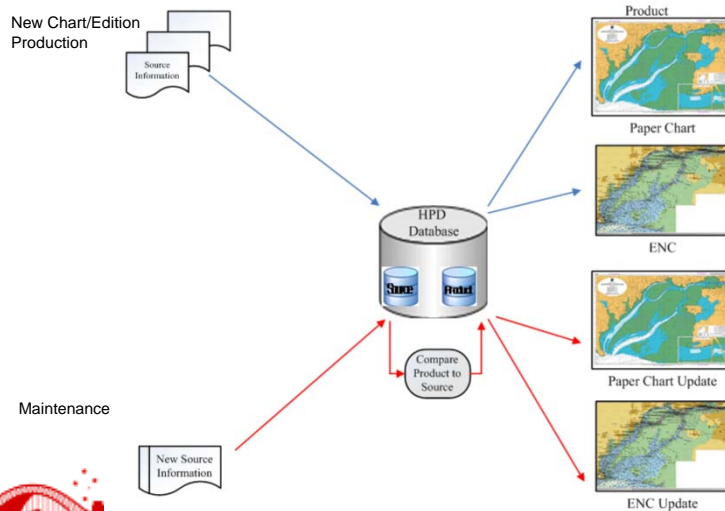## The Revolution in New Zealand Paper Chart Production

- 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.

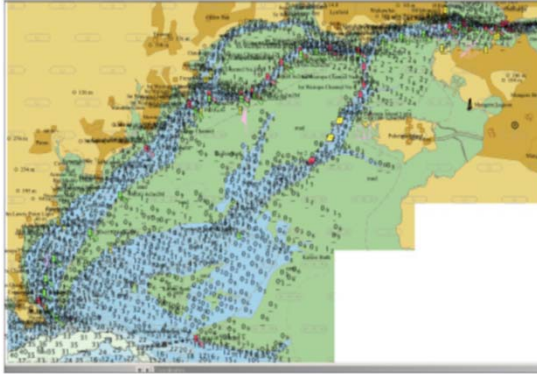Recap of the Traditional Paper Chart and ENC Production and Maintenance Model

LINZ HPD Production Model

FIG Congress 2010
Facing the Challenges – Building the Capacity
Sydney, Australia, 11-16 April 2010

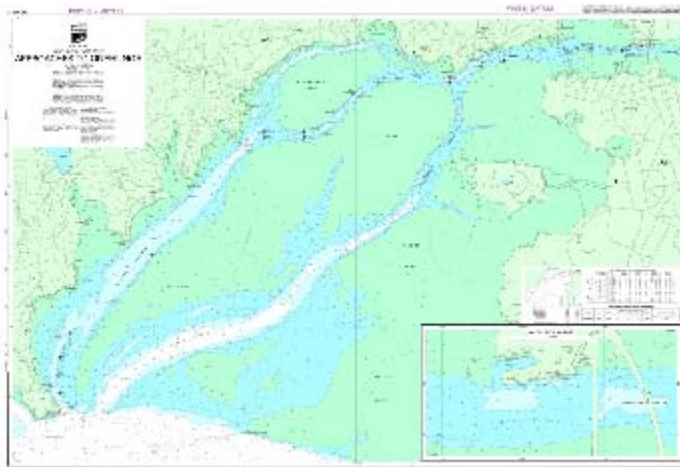**Example of New Paper Chart Production from HPD**

- Source Data

- NZ4315 Approaches to Onehunga October 2009

- Main Sheet 1:18000, Inset Plan 1:2500

- Source data captured and stored in HPD

Example of New Paper Chart Production from HPD
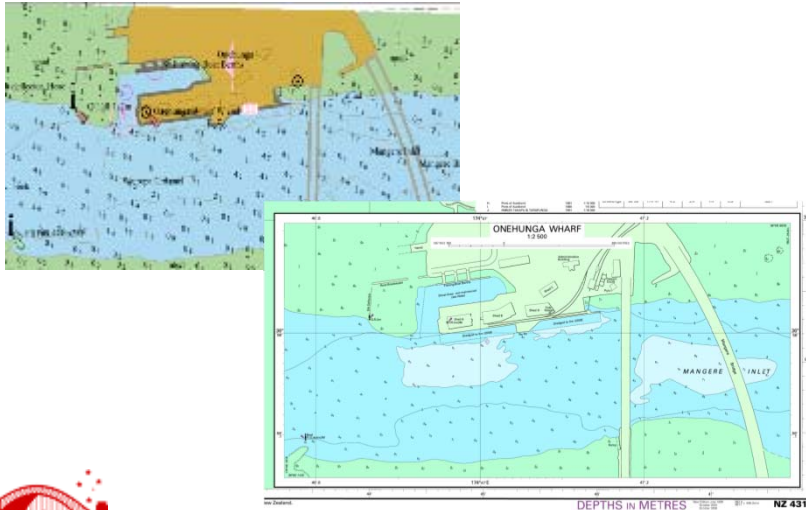
- Paper Chart Product

- 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

Introducing the Revolution in New Zealand Paper Chart Production

Many thanks.

Any Questions?

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