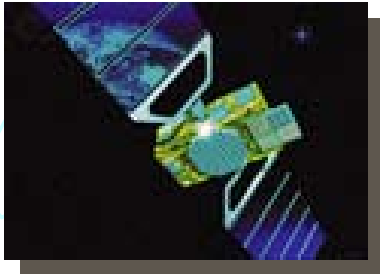


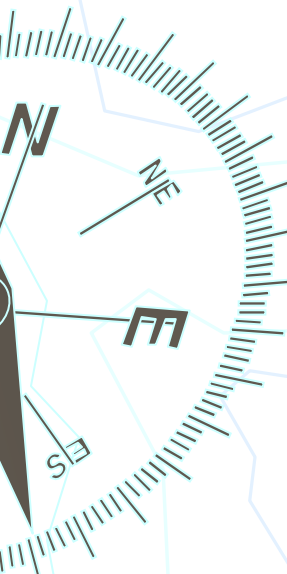
Hydrographic Requirements For Legislation Enforcement



Gary Delaney

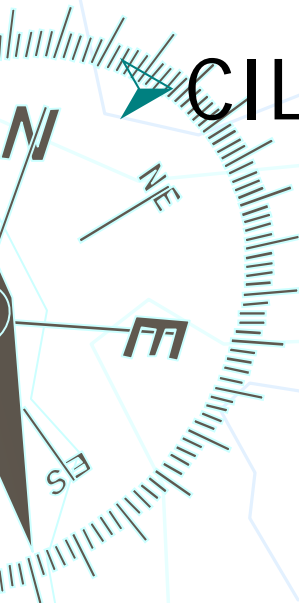
Lt NS (Ret'd), MSc (Nav Tech), FRIN, MNI

GPS Consultant



Who is Enforcing Marine Legislation

- Naval Service
- Dept of Marine/Transport/Agriculture/Customs/Revenue/EPA
- CIL/Coast Guard



My Interest..

➤ MSc Research 1997 – Currency Of Charts Of Irish Waters

- Recommended Hydrographic Office
- Identified Issues with Low Water Mark & BaseLines
- Identified Issues with Horizontal Datum of Most Irish Charts – OSI – WOFO Spheroid
- Some Chart Accuracy Issues

➤ Precise Positioning

- Land Surveying

➤ Maritime Legislation Enforcement

Hydrographic Data

- Charts
- Tides & Tidal Streams
- Lights & Radio Signals
- Pilots
- Chart Corrections – NTM's
- **Related Legal Support Infrastructure**



Marine Navigation For.....

➤ Commercial Purposes

➤ To Enforce Maritime Legislation

➤ Compliance/Governance

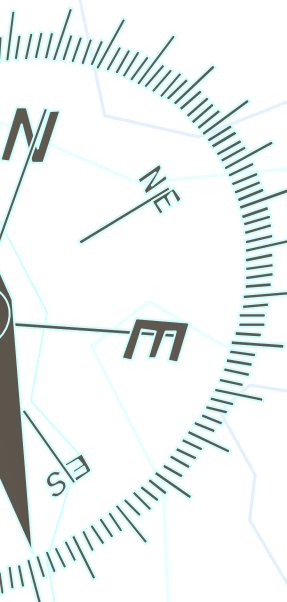
➤ Definition of Territory, Limits, Restrictions

➤ Admissible Evidence

➤ Legislation Refers to “Admiralty Charts” which no longer exist.

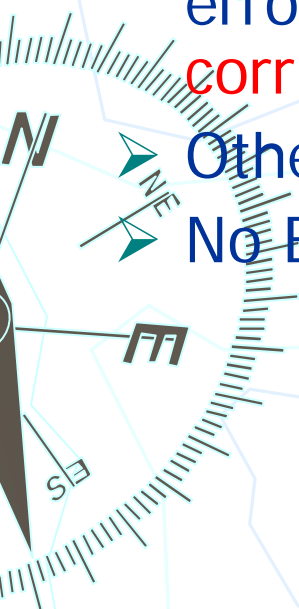
➤ Provision must be changed and also requires acceptance of S57 (ECDIS) Charts and GIS Systems

➤ Allow Electronic Based Evidence



Defining Maritime Territory...

- Low Water Mark Determined in 19th Century
 - Global Warming, Erosion Etc Since
- Baselines Defined Without Datum and to only 1 decimal Place (+/- 250yds) approx
- Because Limits must be plotted by Hand – plotting errors add further errors – Total +/- 500 yds (a potential corridor of error of 1 Nautical Mile i.e. +/- 4% error)
- Other Limits Defined in Multiple Coordinate Datums
- No Evidence on Territory & Limits On Charts



Required...

- **Redefine Low Water Mark**
- **Standardised Coordinate System**
 - Cooperation with OSI (Joined Up Territory Mapping!)
- **Re-define Baseline and Limits In Legislation – with Geodetic Datum & 3 Decimal Places**
 - Ensure Limits are Printed on Charts To Help **Enforcers** and **Compliers**

Standardised Vertical Datum

- Cooperation with OSI
- WGS84 Ellipsoid
- Maritime Construction Contractual Law
 - Numerous Local Chart Datums
 - Specifications For Belfast, Poolbeg which no longer exist

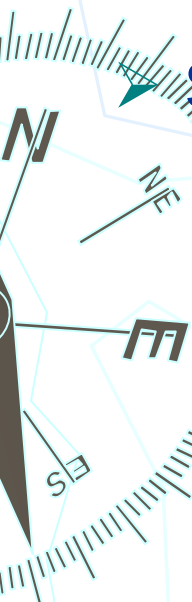


Chart Horizontal Datums

- 80% + Irish Water Charts in OSI Datum
- Some are Unknown!

WATERFORD HARBOUR

DEPTHS IN METRES

SCALE 1:25 000

Depths are in metres and are reduced to Chart Datum, which is approximately the level of Lowest Astronomical Tide.

Heights are in metres. Underlined figures are drying heights above Chart Datum; all other heights are above Mean High Water Springs.

Navigational marks: IALA Maritime Buoyage System—Region A (Red to port).

Projection: Transverse Mercator. Positions are based on the Ordnance Survey of Ireland.

Sources: The origin, scale, date and limits of the hydrographic surveys used in compiling the chart are shown in the Source Data Diagram. The topography is derived chiefly from Ordnance Survey of Ireland maps.

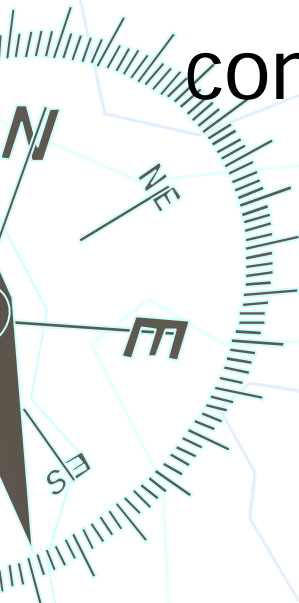
SATELLITE - DERIVED POSITIONS

Positions obtained from satellite navigation systems are normally referred to WGS 84 datum; such positions should be moved 0.02 minutes **SOUTHWARD** and 0.06 minutes

EASTWARD to agree with this chart.

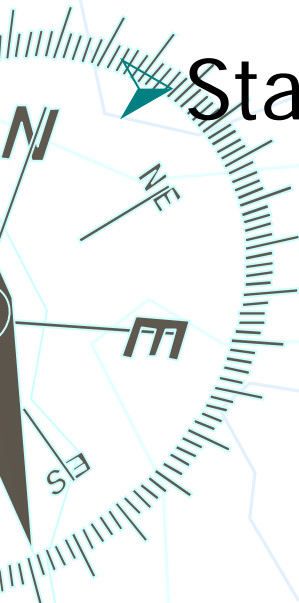
New Coastal Hydrographic Data Required

- To Support Transformation to WGS84 from OSI Datum or those that are unknown
- Allow Full Integration with OSI data to continue Support For Visual Navigation



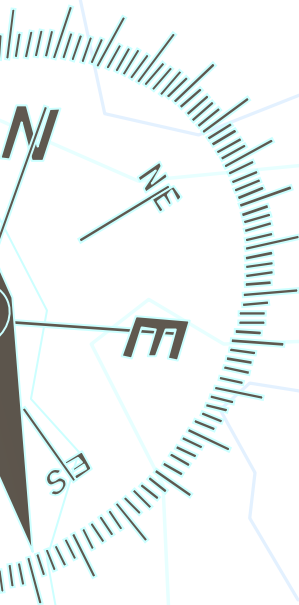
Also Required.....

- Statutory Requirement to pass on any new Data to New Hydrographic Office
- Preserve Associated Copyright for sources of origin
- Statutory Liaison With OSI



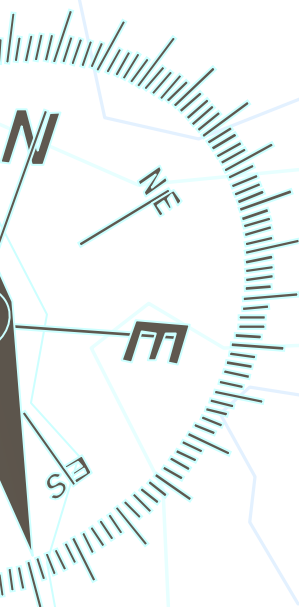
Legal Support For....

- Fish Farm & Aquaculture Licences in Lat/Long WGS84
 - Not Irish Grid



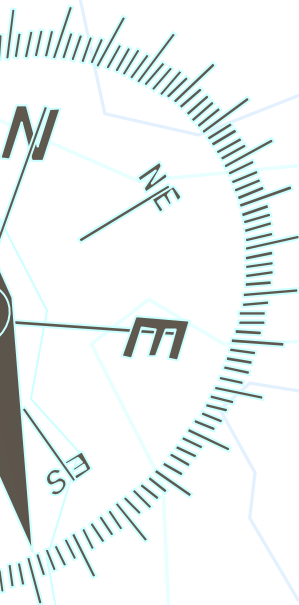
Delineation of Limits On Charts

- Where Disputes exist will there be conflicts of interest – if continuing to use UKHO as Chart Production Service
 - Are there other potential service providers?



What About Inland Waterways

- Who is Responsible For:
 - Lough Ree/Derg
 - Shannon/Erne

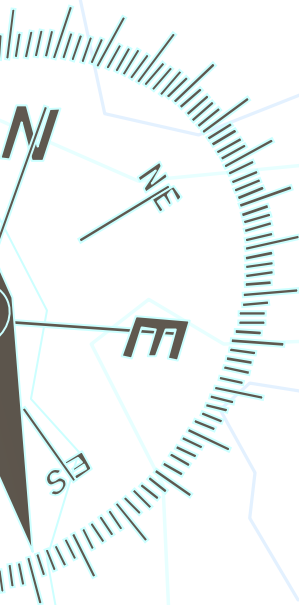


LOUGH DERG

Finally

We Also Require:

- Hydrographic Surveyor Training In Ireland
- State Funding For Courses Through NMCI



Summary



- Establishment of Hydrographic Office Must be used as opportunity to fix the legal support aspects
- Fund Hydro Surveying necessary to switch coordinates and chart detail to WGS84
- Standardised Legal Approaches
- Hydro Survey & Related Courses

