

# **HARMONIZATION OF VERTICAL REFERENCES WITHIN THE BALTIC SEA**

**Jyrki Mononen**

**FIG Working Week 2008  
Stockholm, 14.-19. June**



**Finnish Maritime  
Administration**

## **The scope of presentation**

- **based on the work of the IHO BSHC ChartDatumWG (established in June 2005)**
- **to present the current status of the harmonization work**
- **to give a short overview to existing situation concerning vertical reference systems in use**

## Why harmonization?

- **not existing common vertical reference system**
  - **several different national systems**
    - national systems are principally based on MSL
    - BUT realization of MSL varies
    - differences between national systems not exactly known
- => causes difficulties for hydrography and users of nautical charts**

## Tasks of the ChartDatumWG

**To be reported to the BSHC 13<sup>th</sup> Conference in August**

- **prepare a presentation of existing vertical chart datums (ongoing)**
- **study the EVRF2000 as a principal alternative for nautical chart datum for the Baltic Sea (ongoing)**
- **study time schedules and preconditions of each country to adopt the harmonized datum on nautical charts (ongoing)**
- **study and develop recommended principles how the transfer period should be implemented**
- **prepare recommendations how the sea level and its variations should be shown on nautical charts**

## Existing datums

- **Denmark: DVR90** (nautical charts & land surveying)
- **Estonia: BHS-77**
- **Finland: MSL** (~MW2000)
- **Germany: NN & HN**
- **Poland: H<sub>NN55</sub>**
- **Sweden: MSL 2000** (since 1994, before it MSL of current year)

=> **based basically to MSL, determined differently** (related to NAP, Kronstadt Datum, long term observations of tide gauge stations)

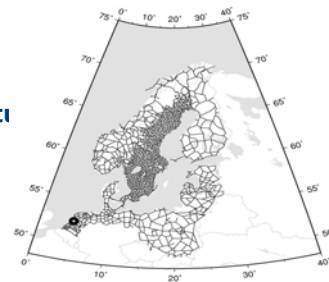
## ChartDatumWG proposal: EVRF2000

### Why EVRF2000?

- **common vertical reference frame in Europe** (realization of EVRS)
- **all mareographs can be tied to a common datum in the Baltic Sea area**
  - **Baltic Levelling Ring, zero point: NAP**

### Visible effects on nautical charts?

- **southern Baltic Sea: practically no effect**
- **northern Baltic Sea: around 15-20 cm changes to depths**



## **EVRF2000 - advantages**

- **one well defined and known international system eliminates confusions between different datums**
- **data transfer between hydrographic offices will be easier - no datum conversions needed**
- **international datum enhances wider and easier use of data (EU INSPIRE -directive)**
- **national level: same datum can be used both hydrographic and land surveys – no conversions**