Cartographic Perspective on Precision Navigation
(NOAA/NOS/OCS/MCD)

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Motivation – Keeping up with the times

1714 AD
Gerardus Mercator

2018 AD
Henry Pelham
Current Electronic Chart Suite
Re-scheme Plan
So much data, so many wonderful products to create

Data sets collected by NOAA (to name a few):

- Bathymetry
- Shoreline
- Tides
- Currents
- Gravity
- Sediment type
- Bottom vegetation
- Fish and other critter feeding grounds and migration patters
- Hydrothermal vents
- ....
Definition:

“Focuses on the ability of deep draft vessels to more safely and efficiently navigate and operate from the sea buoy to the berth, in close proximity to the seafloor, narrow channels, and other hazards, using integrated, interoperable NOAA (and allied agencies) observational, forecast, and geospatial information” (Kretovic, 2018)
What display and planning systems are used by the pilots?

Common Portable Pilot Units (PPUs)
- Bowditch (Wheelhouse 2/3)
- NavSim (NavSim PPU)
- Portable Pilot (ORCA PILOT G2)
- QPS (Qastor)
- Raven Aerostar (Raven PPU)
- Rose Point (Coastal Explorer)
- SEAiq (Pilot)
- Transas (Pilot Pro)
- Trelleborg (Safe Pilot)

Providing products to PPUs
1. Product standards for Portable Pilot Units
2. Relevant layers (parameters to investigate)
3. Spatial resolution/Scales
4. Depth resolution for models (binning depth at a given interval)
What can MCD bring to the Table?
(i.e., working with F4)

- **Sandy Hook, NJ**: Depth (m) 8531680
- **The Narrows, NY**: Depth (m) n3020
Planning accordingly with all resources available
Is that all the consideration?

**What about…**
- Changing sand waves?
- Vessel traffic?
- Cruise line industry traffic?
- Military activity?
- Recreational activities?
- Migration and presence of protected species?
Discussion points

1. Presenting a planned path every 6 minutes rather than 1 hour?
2. Relevant layers (parameters to investigate)?
3. Spatial resolution - 5 to 10 m?
4. Depth resolution for models – 5 m?
5. Product standards for Portable Pilot Units?

**Note:** The cartographic goal for precision navigation is to keep the current formats and scales of incoming sources.
Next steps

Decision support for precision navigation

*Integrated for place, time, and vessel*

- Charts
- High resolution bathymetry
- Safety contours
- Tides & water levels
- Currents
- Winds
- Wave heights
- Weather
- Regulatory restrictions

In the Works...
New York/New Jersey
Lower Mississippi River
Thanks

Questions?
Comments?
Compliments?