Visualizing Model Data for Mariners

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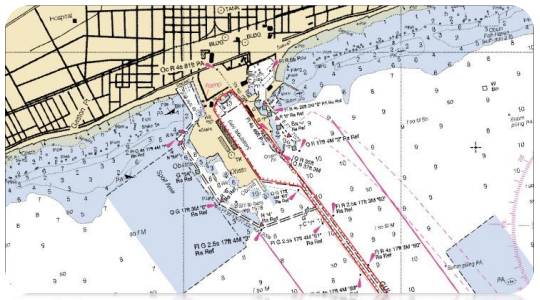
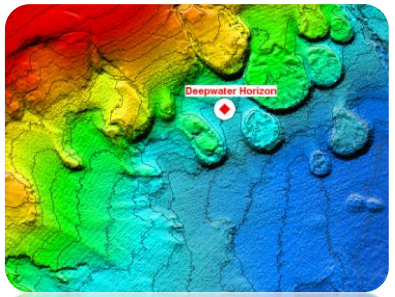
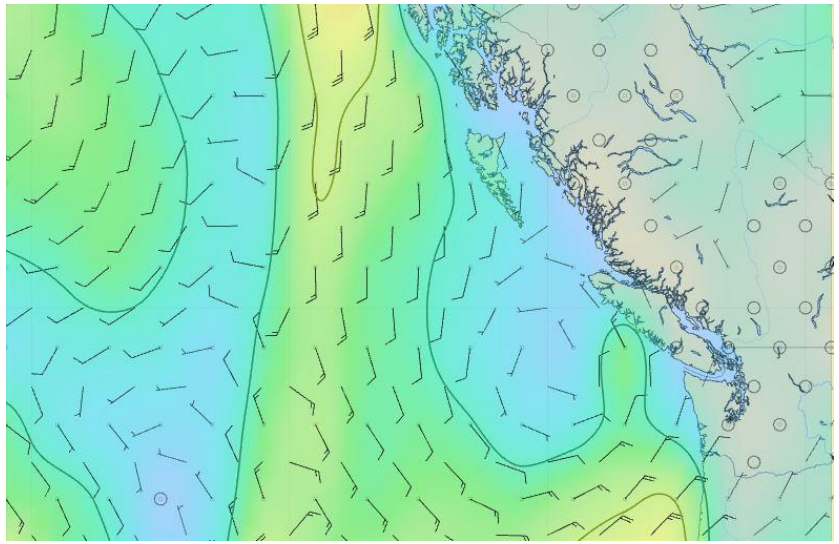
Office of Coast Survey, NOAA



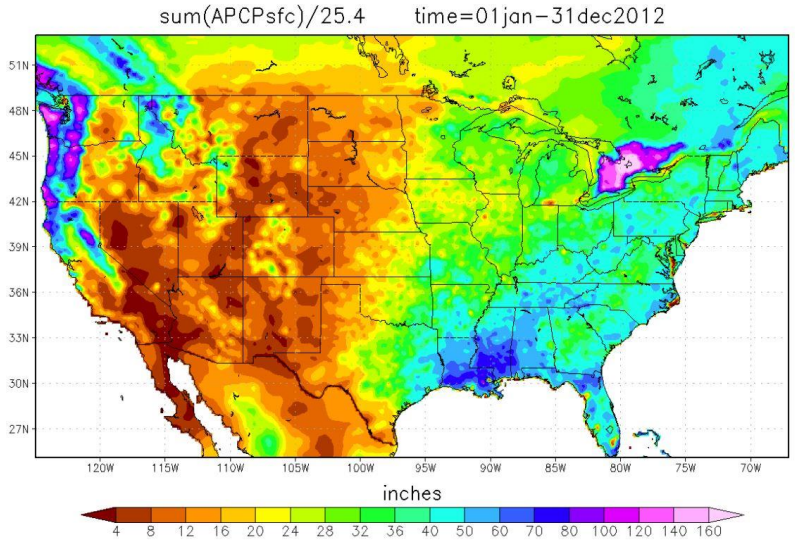


GRIB Data

- GRIB – **GR**idded **I**nformation in **B**inary
- Used operationally worldwide, primarily by The World Meteorological Organization
- Self-contained records of 2-D data
- Ideal for storing historical and forecast data
- Examples below – wind speed/direction (Pacific Northwest) and annual precipitation in the United States



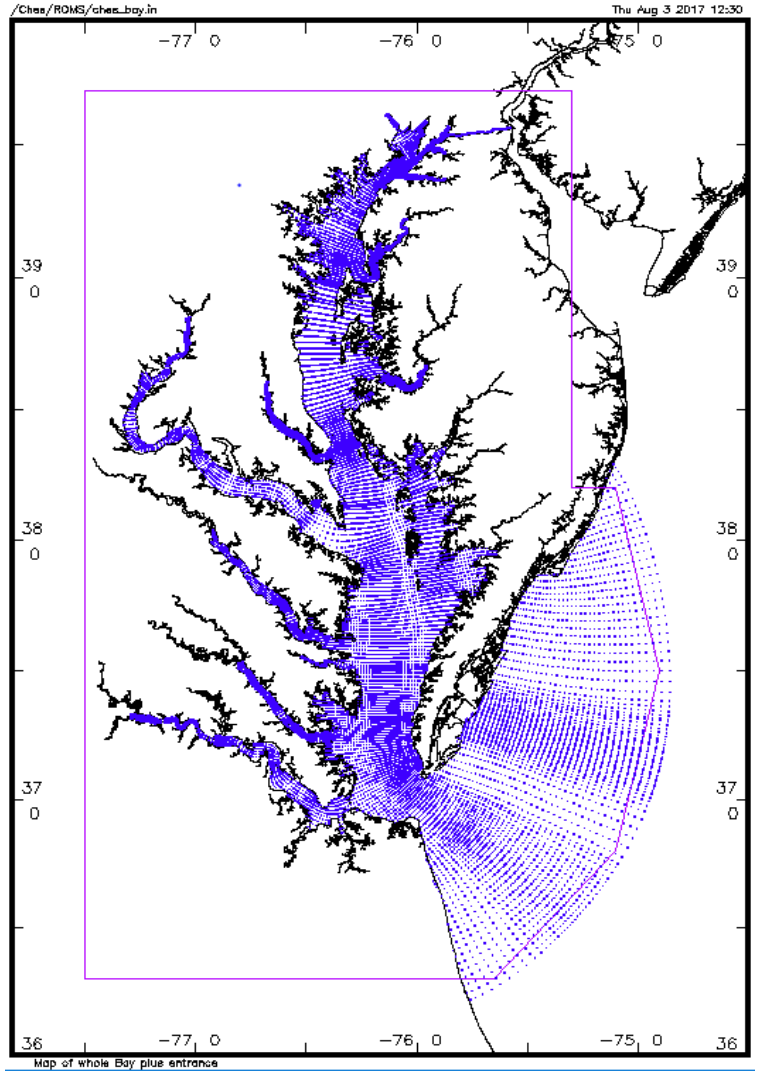
Wind speed and direction



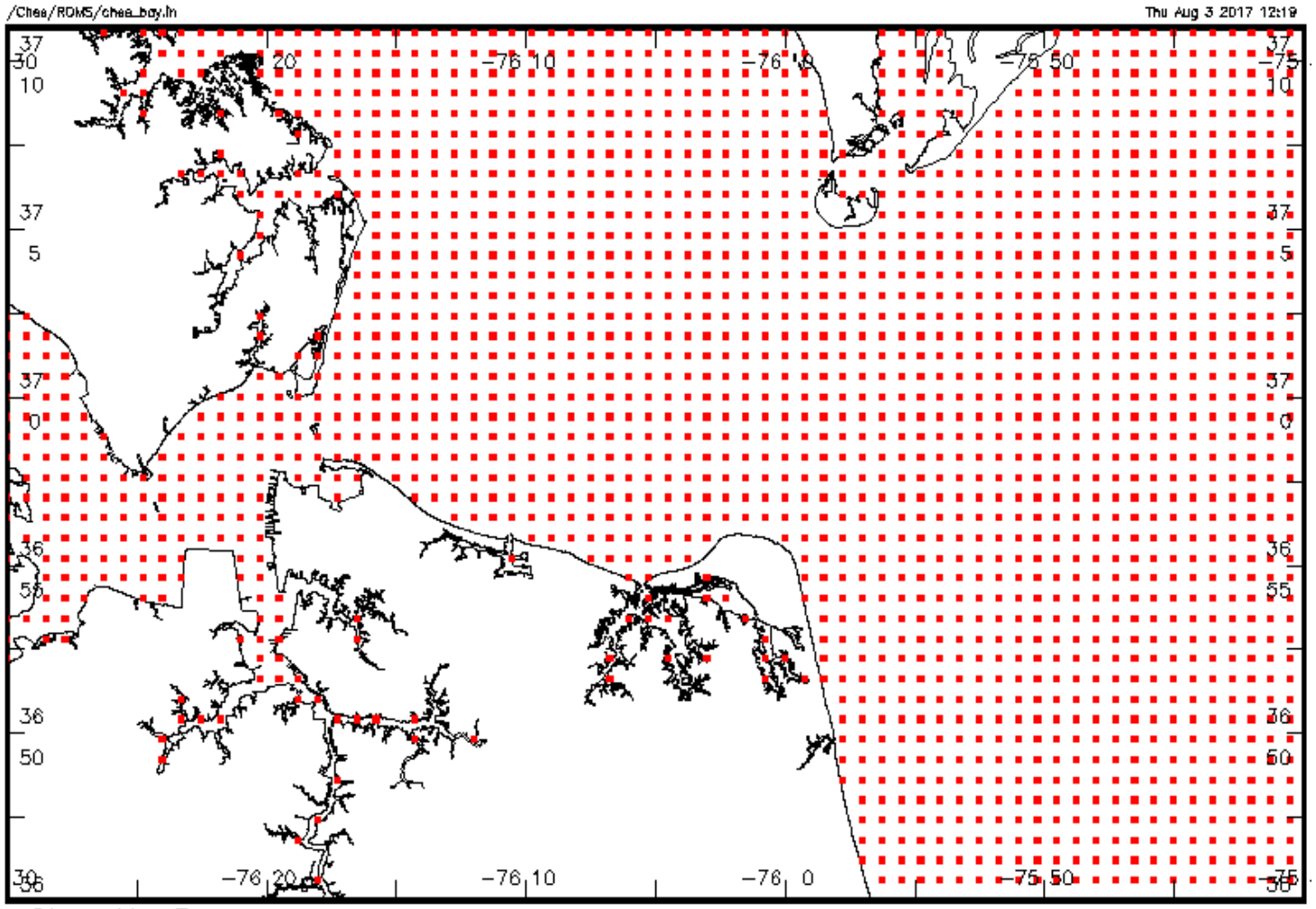
Annual precipitation

Chesapeake Bay OFS

- Irregular Grid
  - pts = 78,480

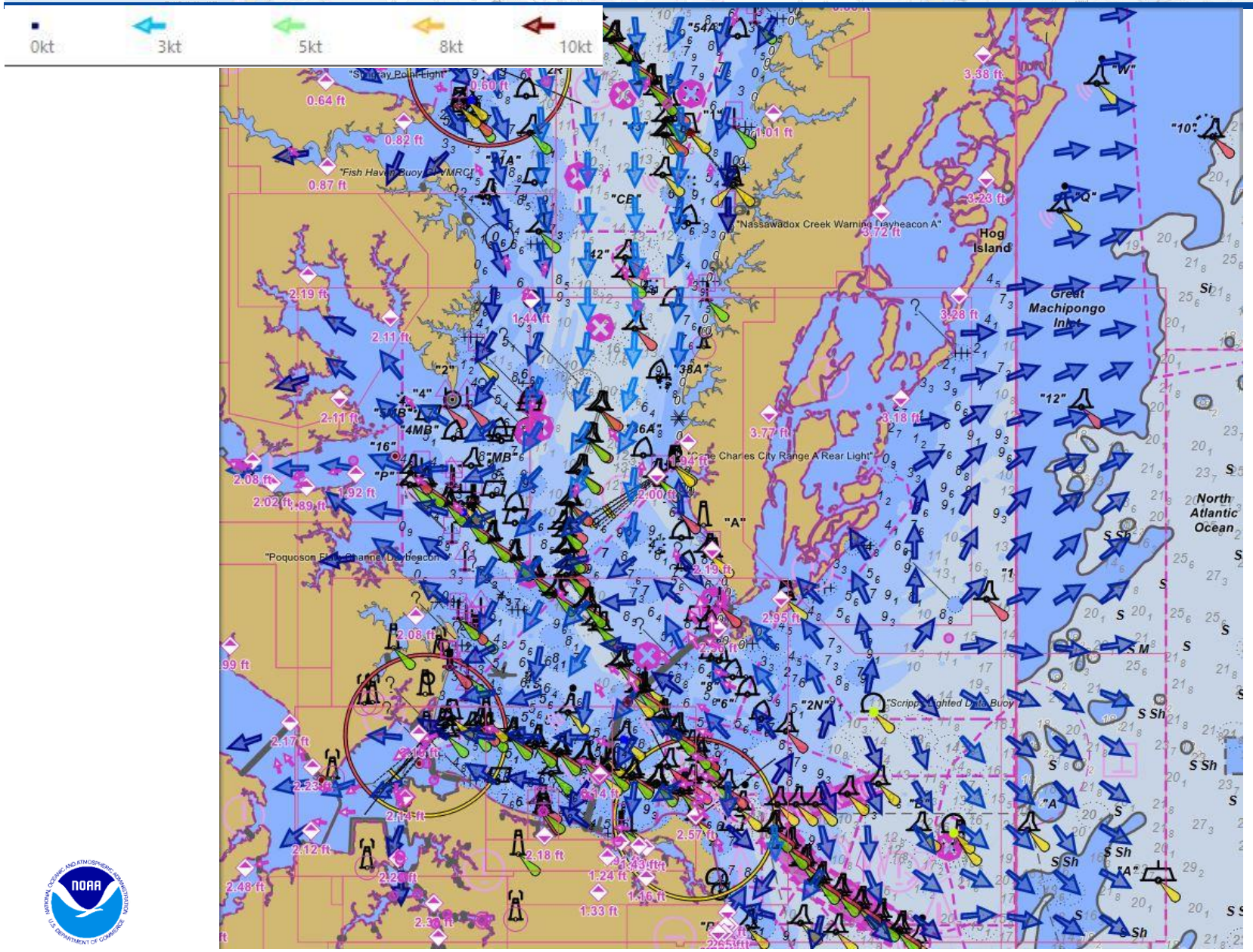


Lower Bay, James River, and Harbor Entrance: Regular Grid Points

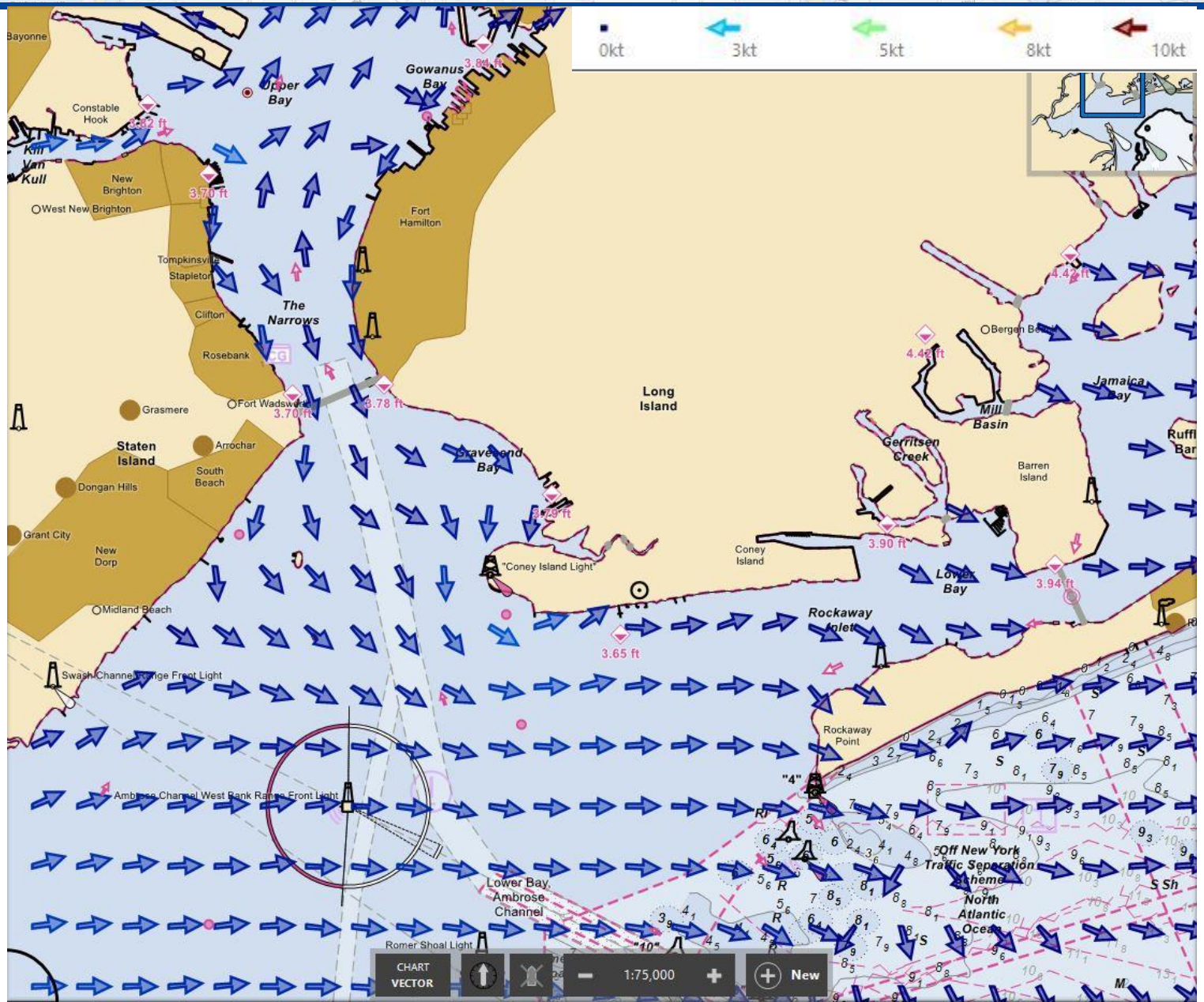


dx = 0.010 deg dy = 0.010 deg

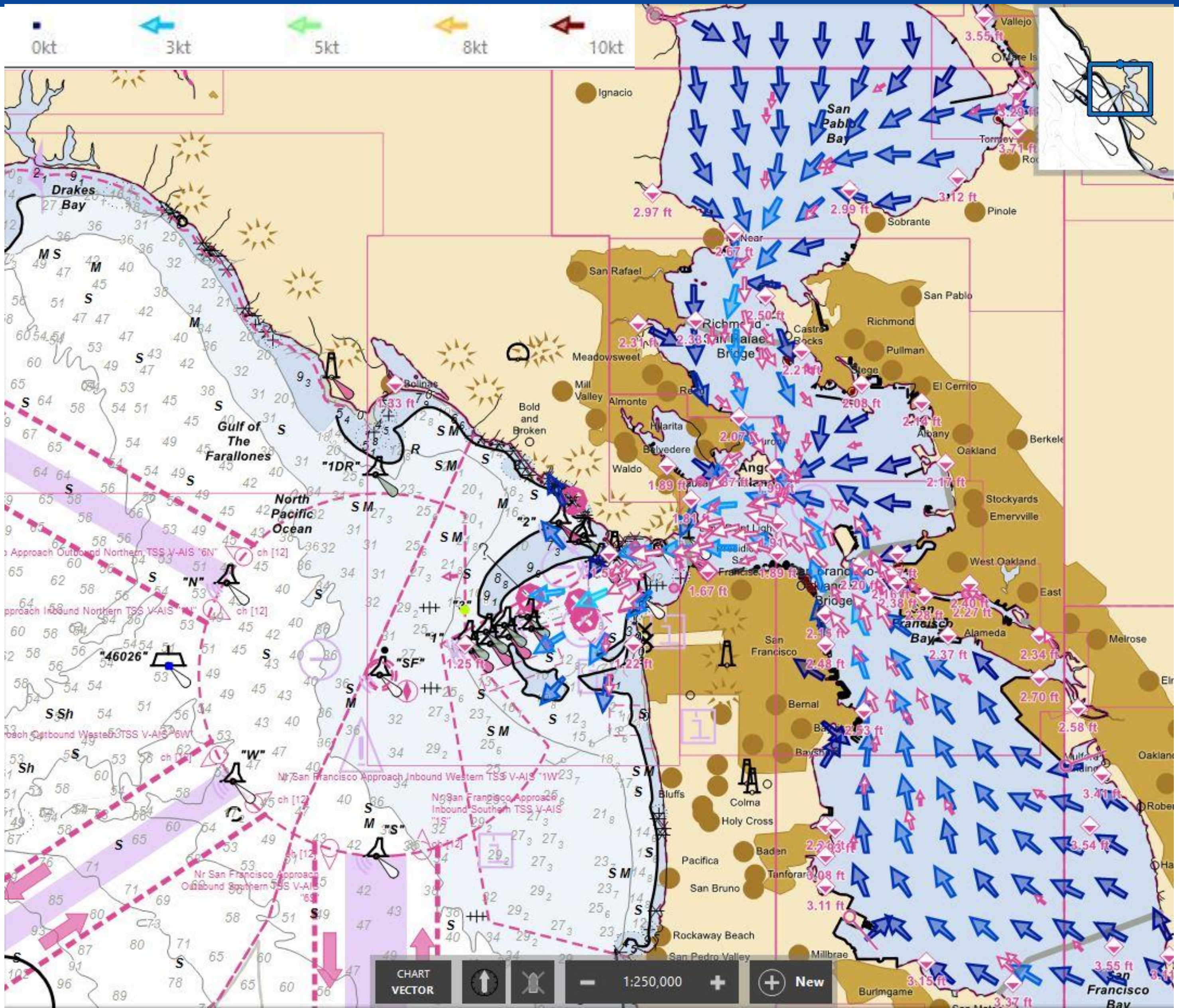
Lower Bay, James River, and Harbor Entrance: Current Vectors



New York Harbor

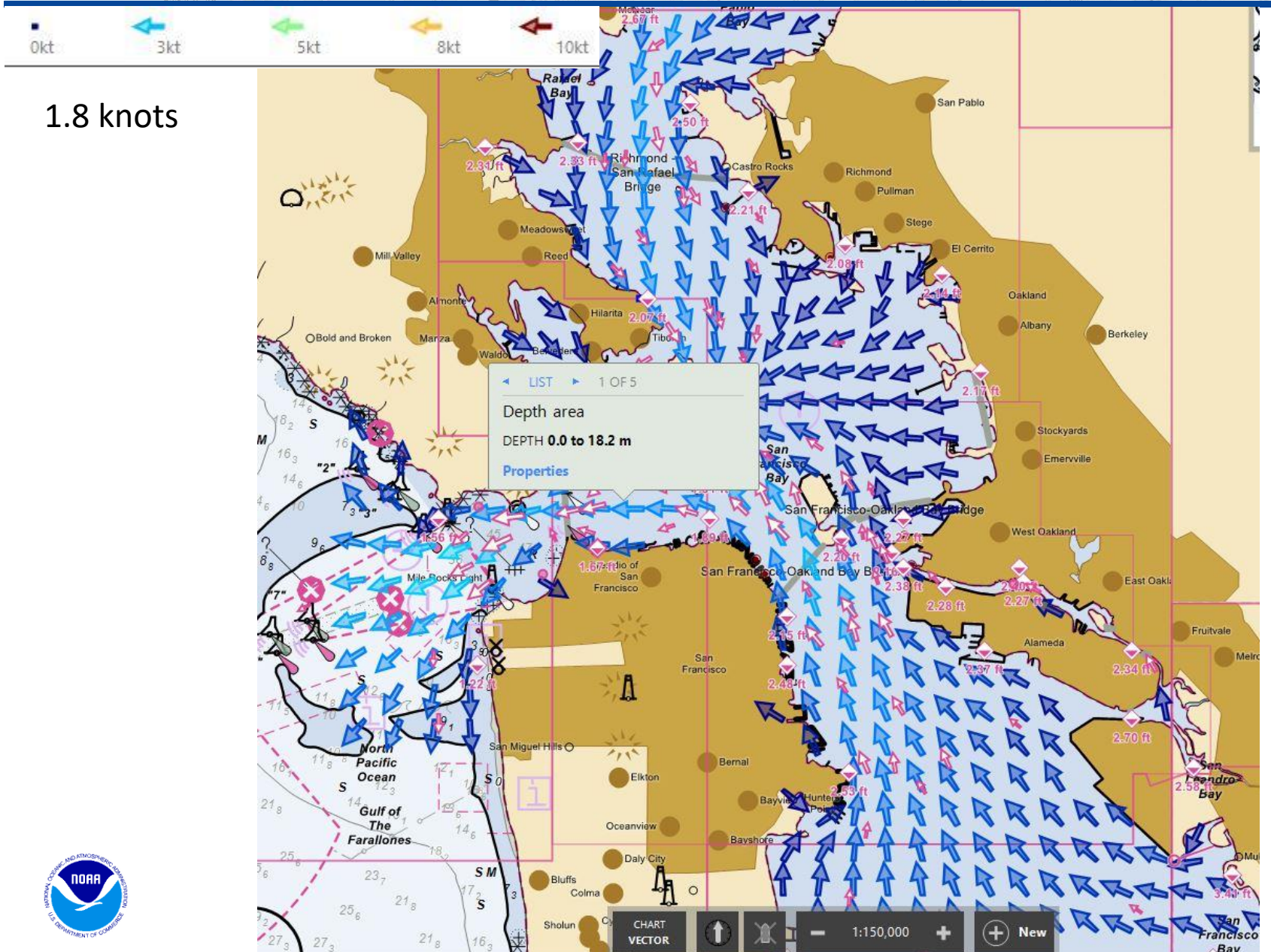


San Francisco Bay



San Francisco Bay

1.8 knots



Operational Forecast Systems - Applications

Hydrography

Route survey
Habitat mapping
Deep sea mining
Charting
EEZ survey

Shipping

Baseline environmental assessment
Geophysical survey
Pipeline survey
Debris/clearance survey
Route optimization

Environmental Monitoring

Emergency response
Water quality
Ecosystem assessment
Spill assessment

Search & Recovery

Asset location
Marine archaeology

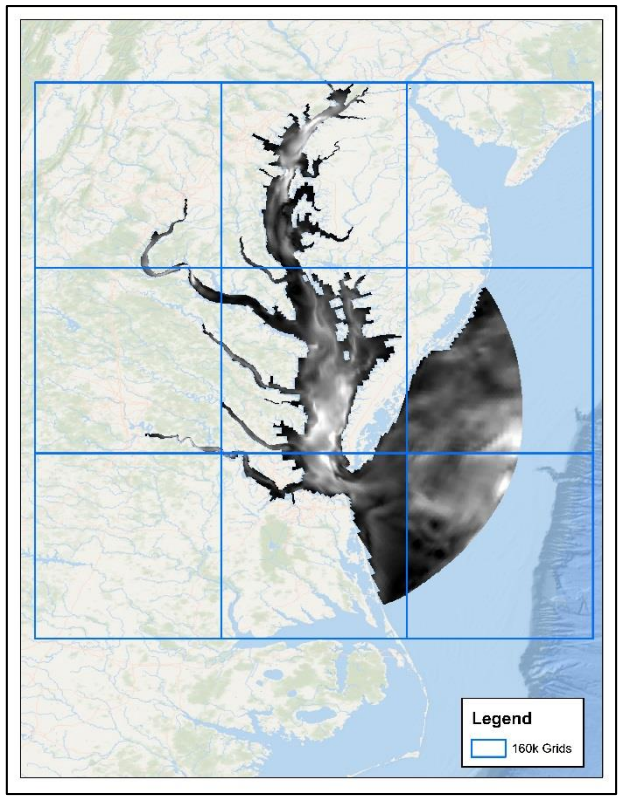
Looking Ahead

HDF5

Test Datasets – Chesapeake Bay
48 Hours
10 Mb threshold limit
500 m resolution

S-111

Tides, Water Levels and Currents WG



Courtesy – Erin Nagel

S-111 Surface Current Operationalization

Neil Weston and Julia Powell

Project Information

Description

- Develop a service for disseminating OFS surface Current information in the IHO's S-111 Format for use in navigation systems
- S-111 data is designed for interoperability with the Electronic Navigational Charts
- Develop an automated process to convert the THREDDS OFS NetCDF into S-111 complaint HDF

Project Priority & Size: Medium, Medium

Alignment with OCS Goals:

- Goal 4 – Change Navigation
- Package weather, water levels and hydrodynamic models into an easily digestible format for consumption by Electronic Chart Systems

Expected Benefits

- Standardized Surface Currents for use in navigation systems
- Improved Navigation Decision Support

Stakeholders

- Champion- CAPT Edward J. Van Den Ameele
- Owner- OCS???
- Internal Customers- CMMB, GADB
- External Customers- CO-OPs, IOOS, Equipment Manufactures
- End-users- Mariners and the navigation community
- Supplier- OCS IT

Project Manager/Team

- Neil Weston - PM
- Kurt Hess/Erin Nagel/Ed Myers/Greg Seroka/Julia Powell/Jason Greenlaw

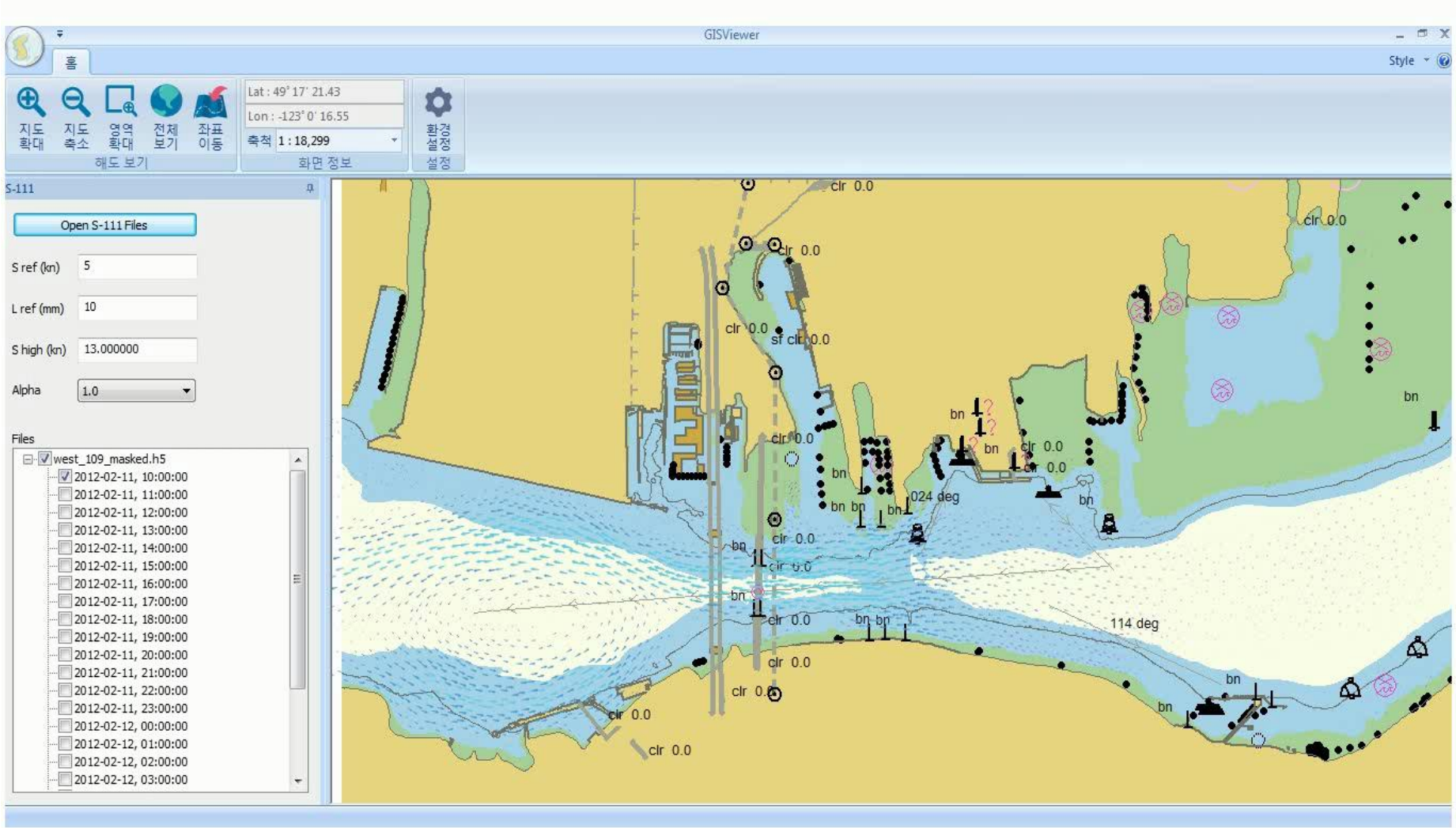
NOAA Readiness Level

- Initial: 3
- Current: 5
- Final (planned): 9

Review Information

Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6
Concept	Feasibility	Planning	Development & Testing	Transition/Delivery	Closure

S-111 Visualization



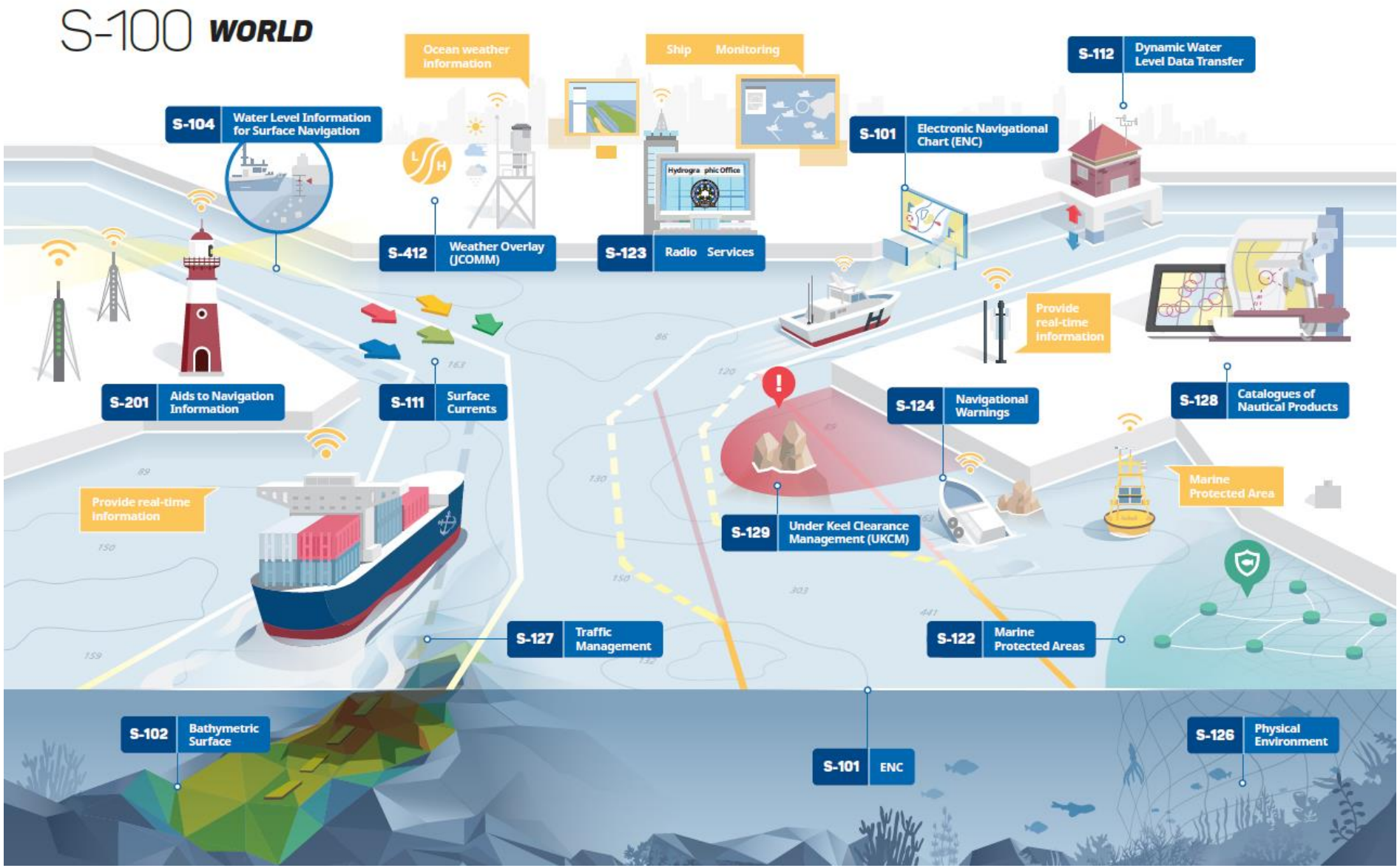
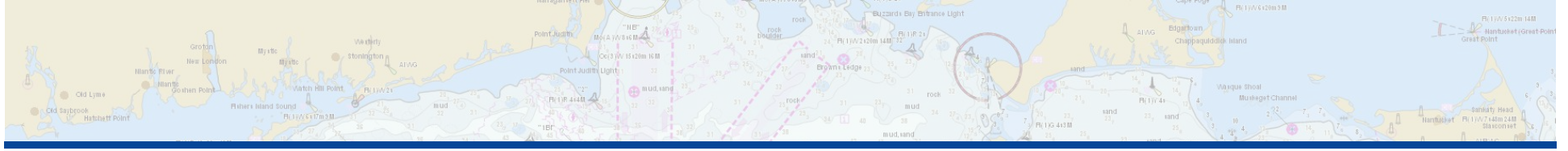


Image Courtesy of KHOA



Resources

http://www.nco.ncep.noaa.gov/pmb/codes/GRIB2/

http://www.nco.ncep.noaa.gov/pmb/docs/grib2/grib2_doc.shtml

SeaPilot

Neil & Kurt OCS, NOAA

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