

# ***Jacobsen Pilot Service, Inc.***

***Safe Vessel Movement using  
Information Technology***



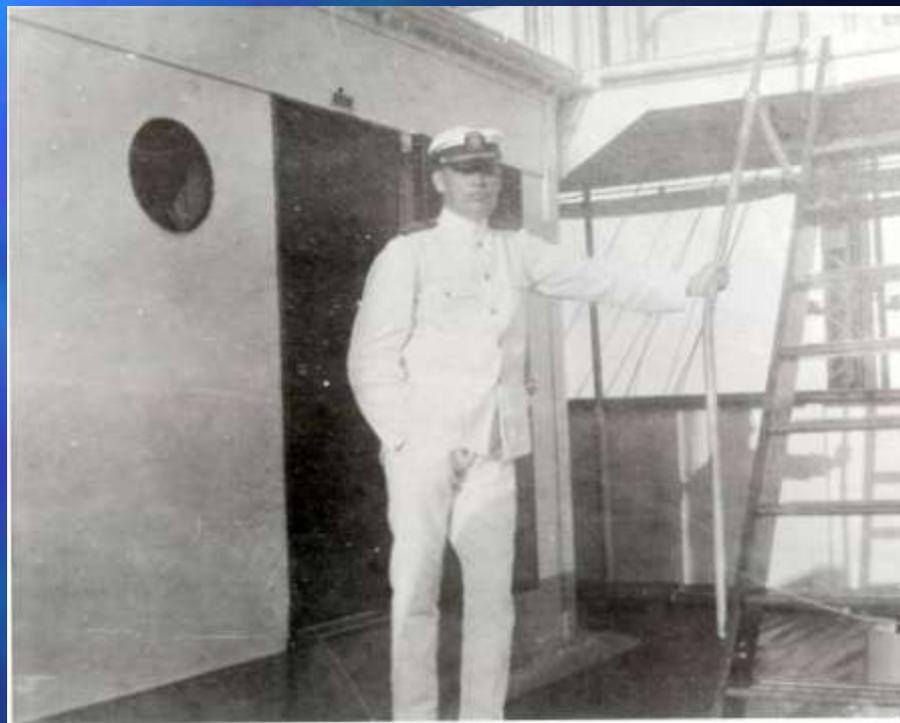
**By: Tom Jacobsen  
President**



# Jacobsen Pilot Service, Inc.

## Overview

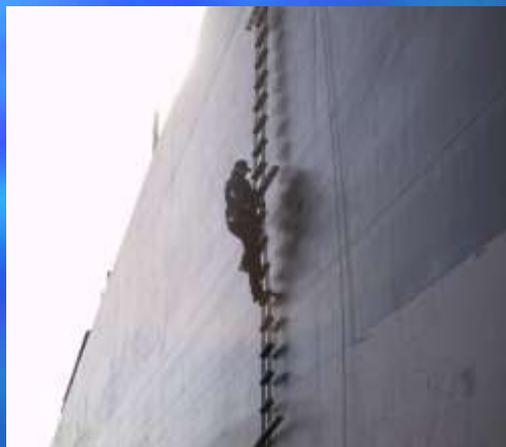
- Captain J.A. Jacobsen started Piloting in 1924.
- Pilot all commercial ships in Long Beach Harbor
- Pilot US Navy ships
- 24 hours a day, 365 days a year
- 19 Pilots,  
11 Boatmen -Dispatches
- JPS is a private,  
Incorporated Business.





# Jacobsen Pilot Service, Inc.

## Pilot Duties





# Jacobsen Pilot Service, Inc.





# Jacobsen Pilot Service, Inc.





# Jacobsen Pilot Service, Inc.

## Pilot Selection , Qualifications, Training

- **Qualifications**
  - Experience
  - Physical exam
  
- **Pilot Selection**
  - Attitude, ability, talent, background
  
- **Training**
  - Min. 3 years
  - Simulator





# Jacobsen Pilot Service, Inc.

## Ship Moves

Today we average  
about 7,000 ship  
moves per year.



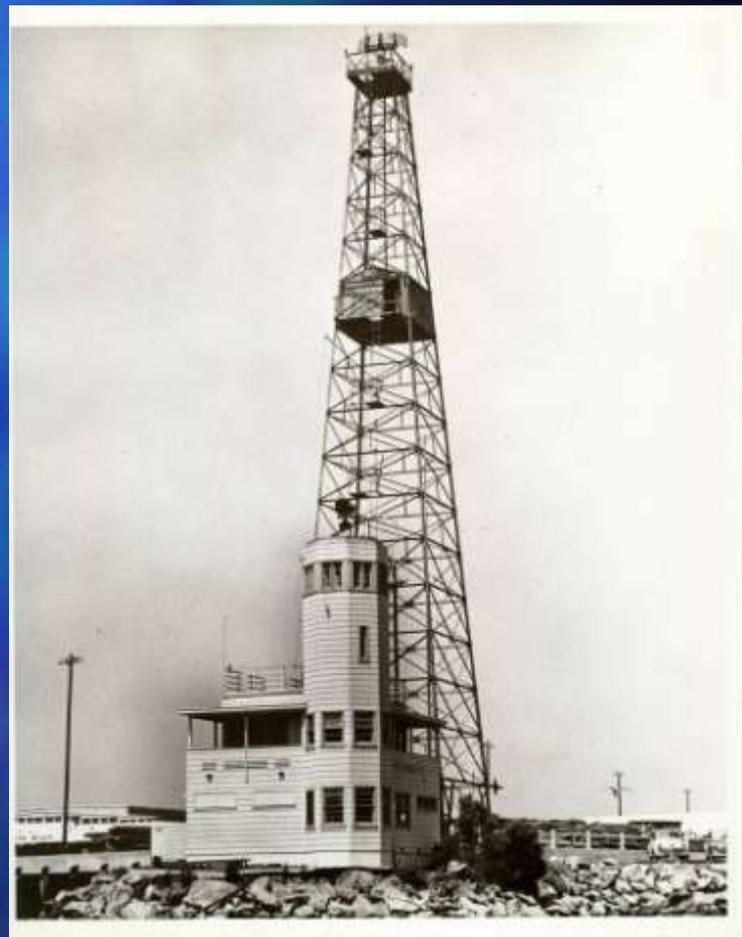


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## *Utilizing Technology*

■ 1940's

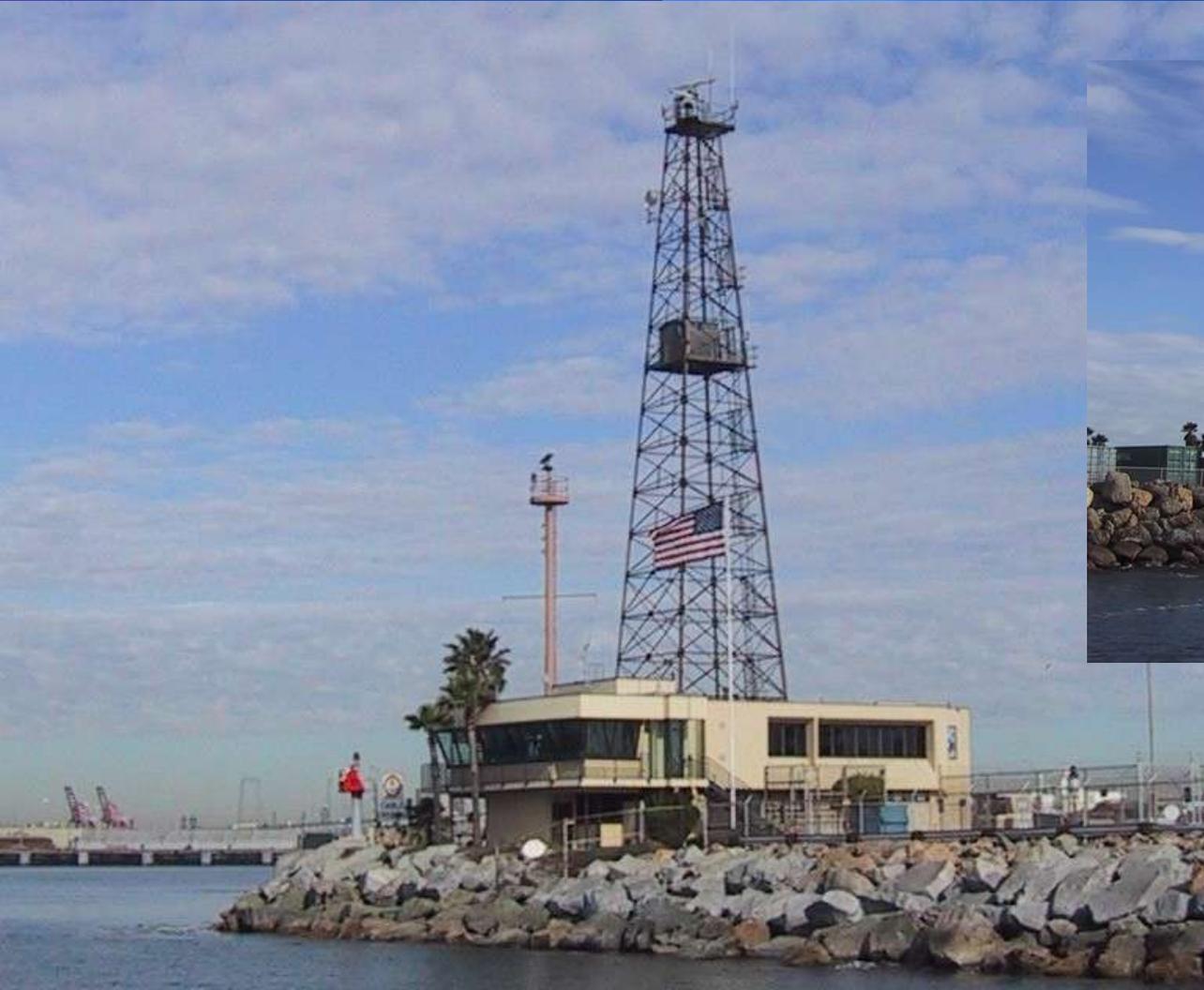
First Shore Side Radar in  
United States & VHF Radio's





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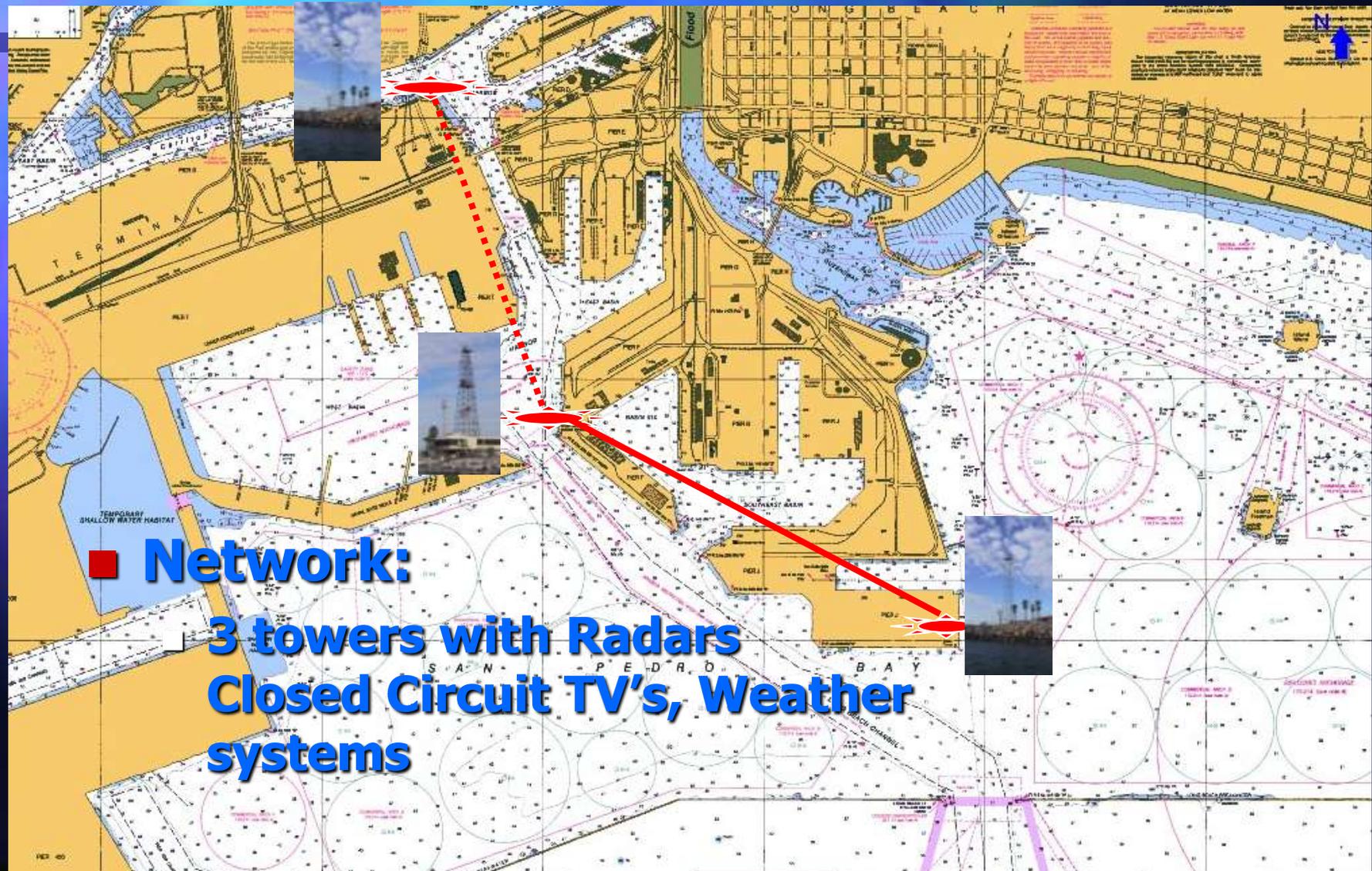
1970's and 1990's expanded the Radar Technology





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## Network



**■ Network:**  
**3 towers with Radars**  
**Closed Circuit TV's, Weather**  
**systems**



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## Vessel Traffic Service / Long Beach Sector





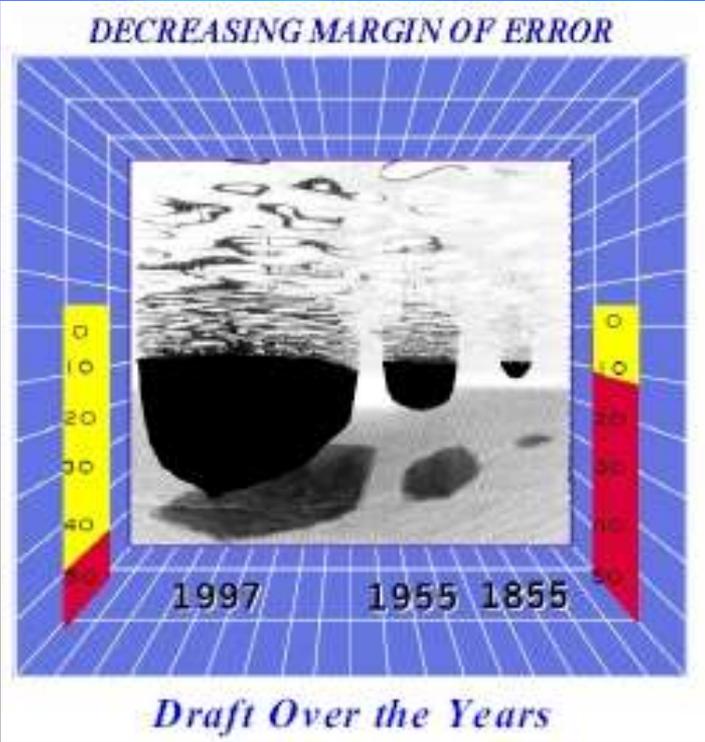
# Jacobsen Pilot Service, Inc.

## Traditional System of I.T. (Pre – 1996)

- Collecting all I.T. at the Pilot Station, then relaying it to the Pilots
  - Ships position
  - Radar targets
  - VTS / AIS for traffic vessels
  - Weather information
  - Air Gap
  - CCTV



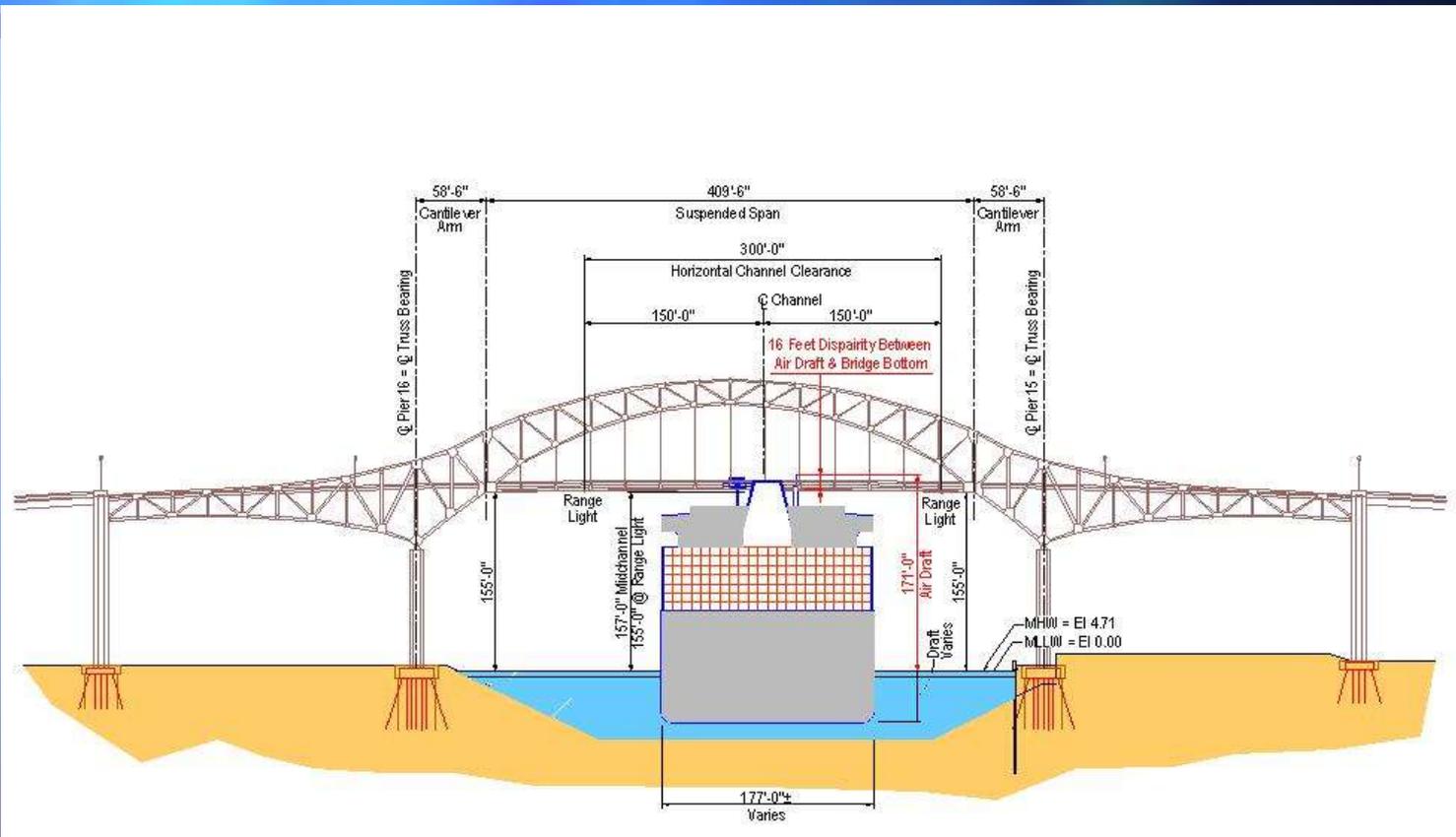
# Jacobsen Pilot Service, Inc.





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## Size of vessels



**Ships now are limited by height, draft, and width of channel.**



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# Jacobsen Pilot Service, Inc.

## New Technology

- Need for High Precision Piloting.
- Goal: Getting all I.T. info in the hands of the Pilots
- 1996 started the "PilotMate" project using DGPS.
- Team effort between POLB, JPS, ARINC.





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## Original Hardware



- Two Antenna System
- Raster Charts
- Differential correction
- 900 Mhz data connection to Pilot Station





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## Precision Positioning

PM Monitor Station, V4.75 - [Replay File ID : lb\_0702b]

Control Display Vessel Charts Overlays Routes Config Help

Speedt...

|     |         |
|-----|---------|
| SOG | 0.9kts  |
| COG | 341 ° T |
| HDG | 169 ° T |
| ROT | 7 °/M   |

Replay Controls

1

<< < || > >>

Ready | N33°45.6661 | W118°15.5833 | 17:58:04 | DPOS7\_KHDG7



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## Modern PilotMate system

- Added Features:
  - Digital Charts
  - Precise position
  - Pivot Point
  - Projections
  - Depths
  - VTS / AIS
  - Parked Ships
  - Meeting Points
  - Distance off objects
  - Recordings
  - Simulations
  - ETC





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**Ships keep getting larger  
1100' LOA x 230' Beam**





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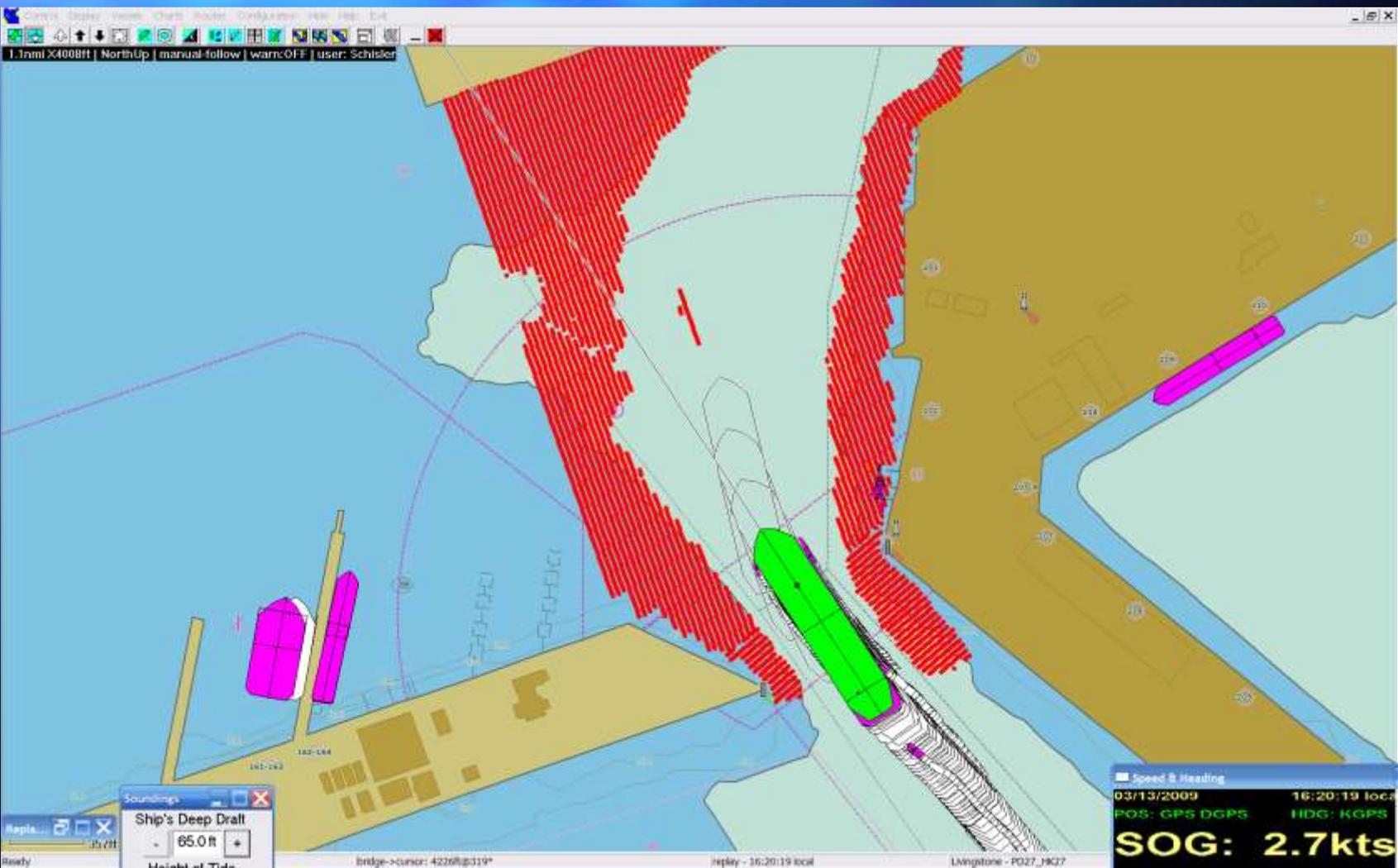
PilotMate DGPS





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## PilotMate – DGPS





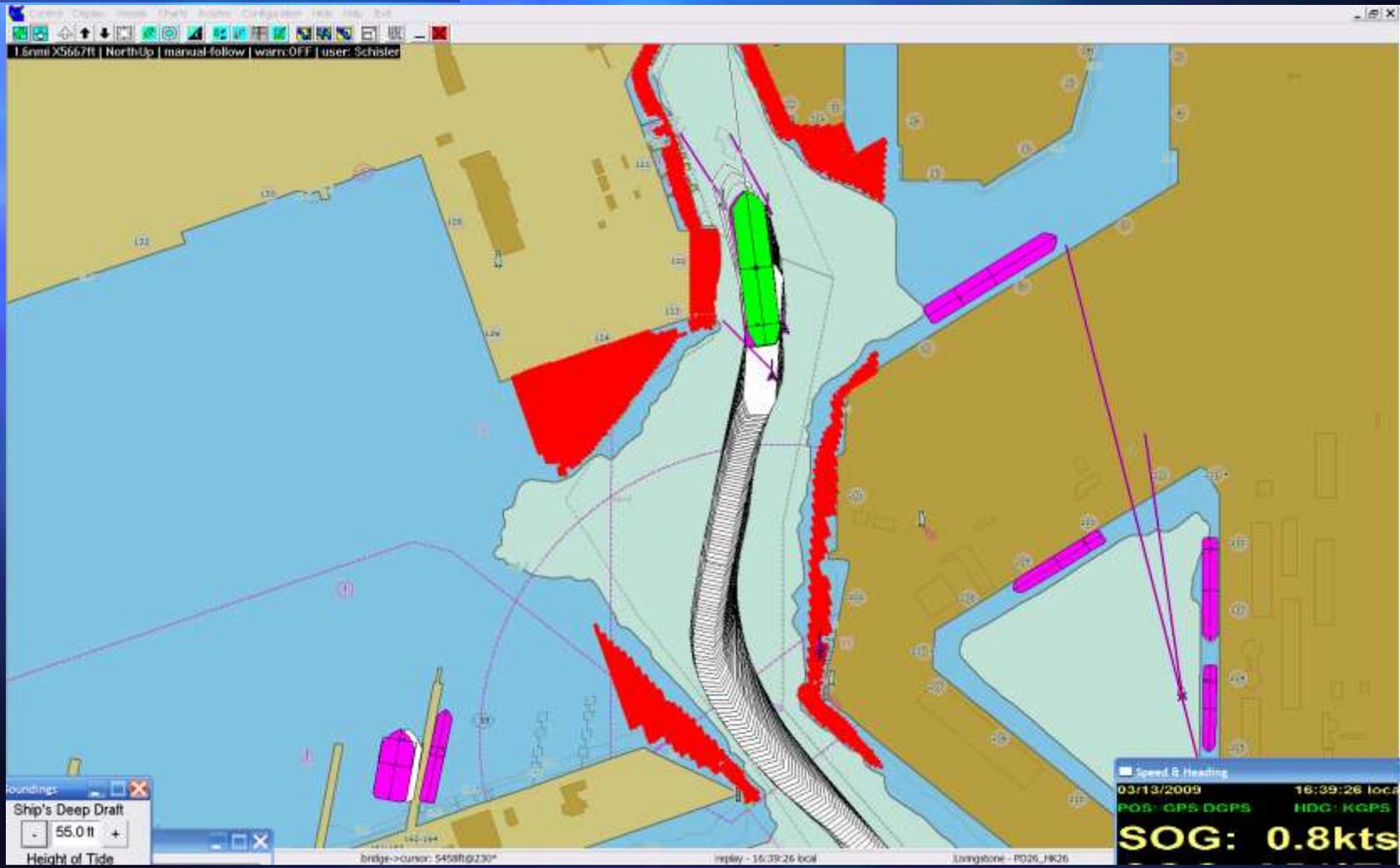
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## Recordings and playbacks





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FOG





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**PilotMate – DGPS**





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PilotMate - DGPS

Control Display Vessels Charts Routes Configuration Hide Help Exit

3425ft X2344ft NU manual 'Default'

Safety Depth  
+ 43 ft -

Speed & Heading  
SOG: 0.90kts  
COG: 277°T  
HDG: 045°T  
ROT: 6.6°/M

Route Navigation  
none  
WPT: LB86Face  
DST: 517ft  
BRG: 340.9°T  
TTG: 6 min

The image shows a screenshot of a navigation software interface. The main display is a map of a waterway with a vessel's path highlighted in green. The path starts from a point labeled 'WP\_004' and moves towards a point labeled 'LB86Face'. The map shows depth soundings (e.g., 3, 5, 10, 12, 12.4, 12.8, 40, 76, 110, 111, 112, 113) and various navigational markers. There are three data windows: 'Safety Depth' showing 43 ft, 'Speed & Heading' showing SOG: 0.90kts, COG: 277°T, HDG: 045°T, and ROT: 6.6°/M, and 'Route Navigation' showing 'none', WPT: LB86Face, DST: 517ft, BRG: 340.9°T, and TTG: 6 min. The interface includes a menu bar at the top and a toolbar with various navigation icons.



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## FOG & PilotMate - DGPS







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## Bigger Ships

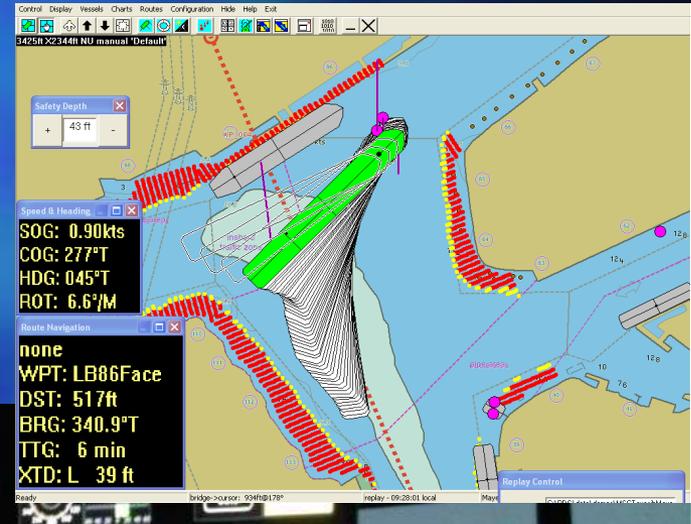




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## FUTURE of I.T. for Piloting

- 3D DGPS
- Real time UKC
- Transmit Shore radar to Pilot
- Broadband connection
- Virtual Reality for Zero Visibility





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