Jacobsen Pilot Service, Inc.

Captain John Strong

Vice President

Mega ships and Dynamic Under Keel Clearance Project

PORT OF LONG BEACH

Pilots need accurate, real-time information

NOAA P.O.R.T.S
- **Tides**
- **Wind**
- **Air-Gap**

**Wind Force in MetricTons**
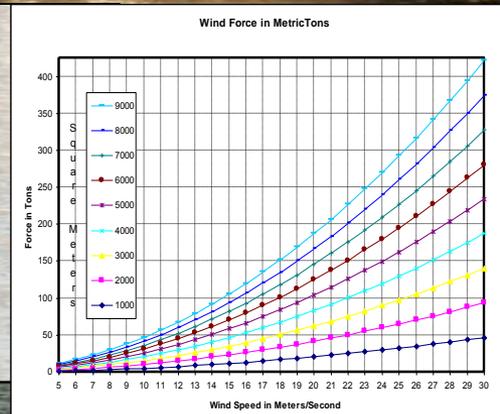
Jacobsen Pilot Service, Inc.
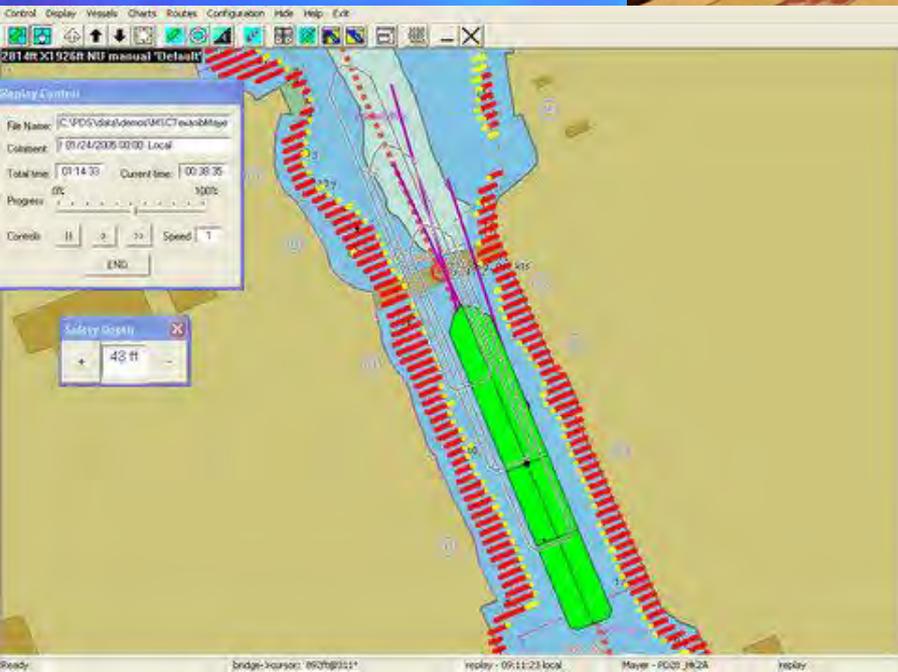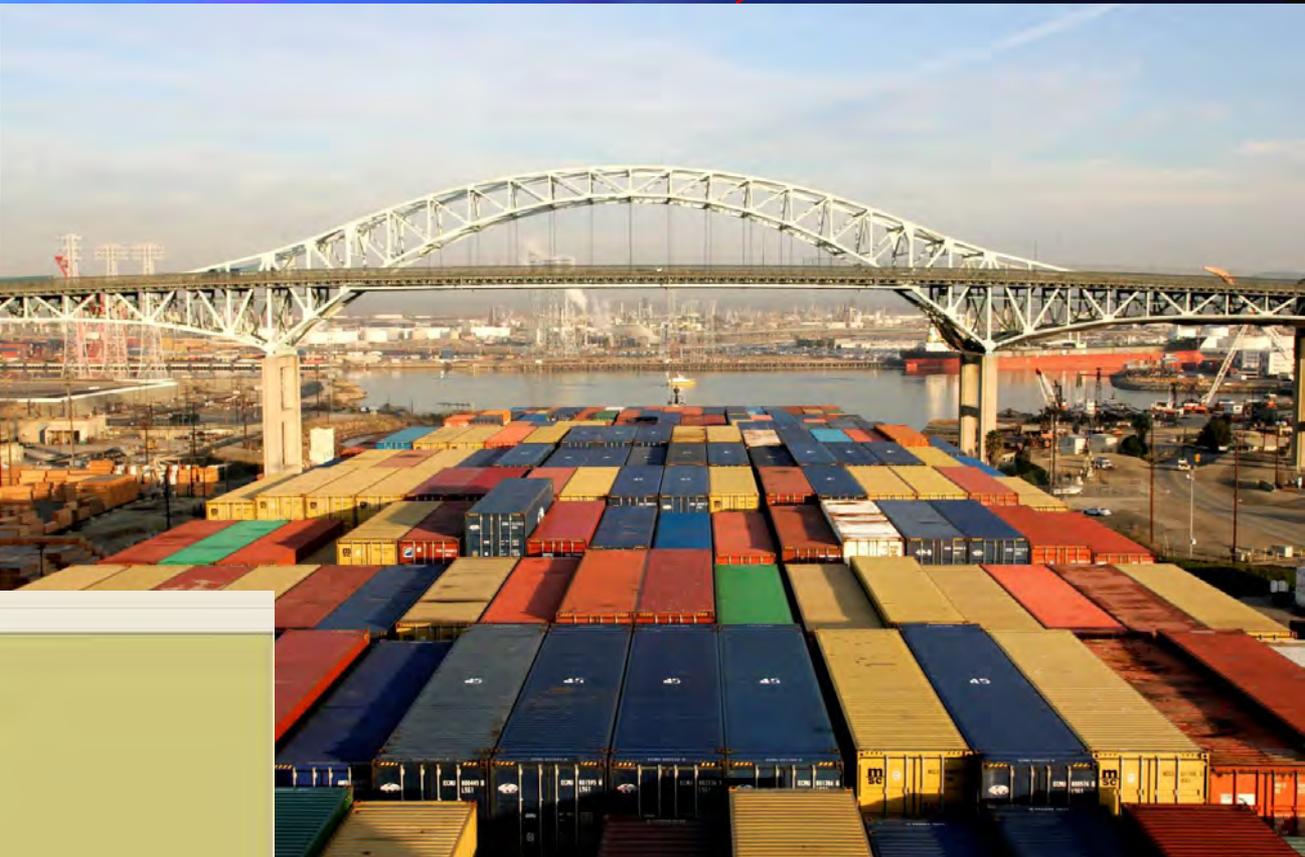
Precision piloting with DGPS PilotMate system.

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Challenges of VLCC's and ULCC's
Entering Long Beach

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With Zero Pitch:

76' MLLW

65' Max Draft per COTP

11' Under Keel Clearance
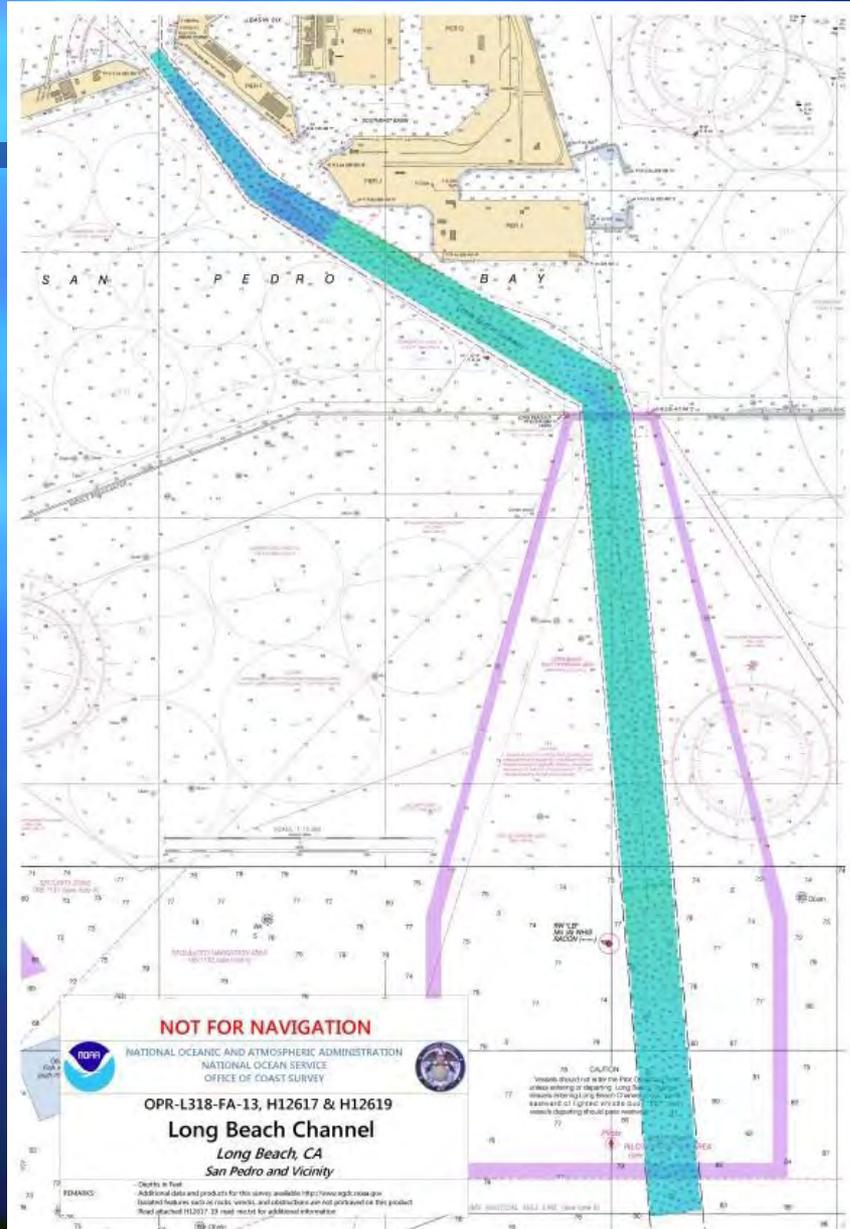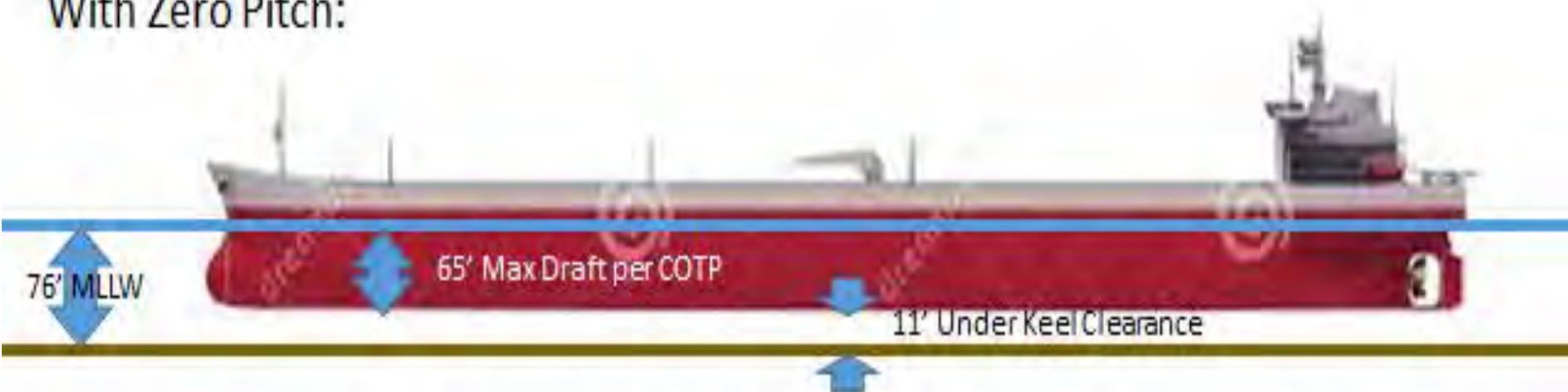
With 1 degree of Pitch, there is a 9.6' increase in draft for a 1,100 foot tanker:

76' MLLW

65' Max Draft per COTP

1.4' Under Keel Clearance
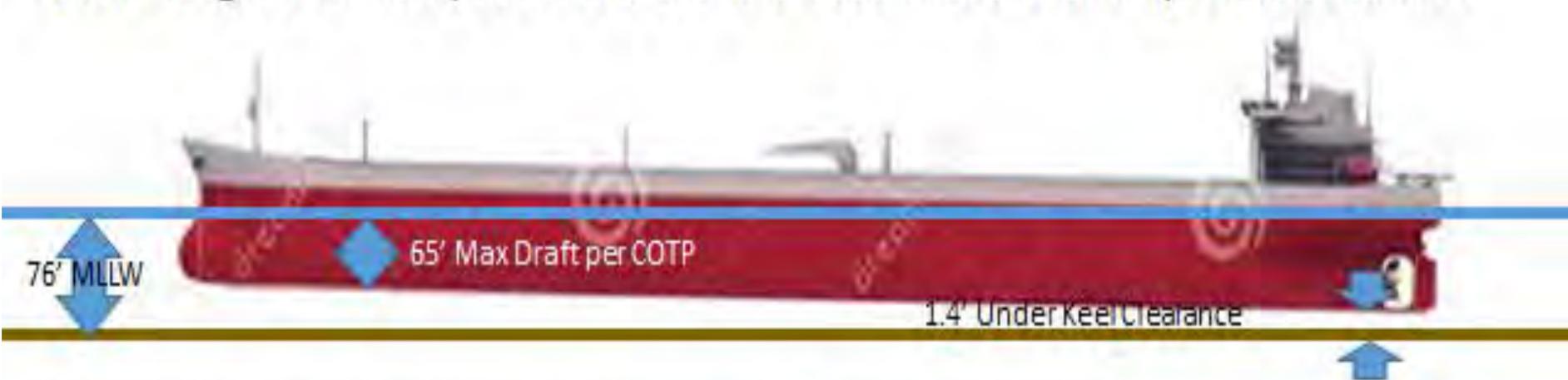
POLB dredged to 76 feet from approach channel to Pier 121 (Tesoro and Pier 121 Users)

# Jacobsen Pilot Service, Inc.

Our Present method of determining GO / NO GO

- ✓ CDIP/SCCOOS Swell Warnings

- ✓ Experience

- ✓ **Seaman's Eye**

- ✓ Observed pitch & roll far enough **offshore to permit "bail-out" before** committing to channel

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Bail Out Chart
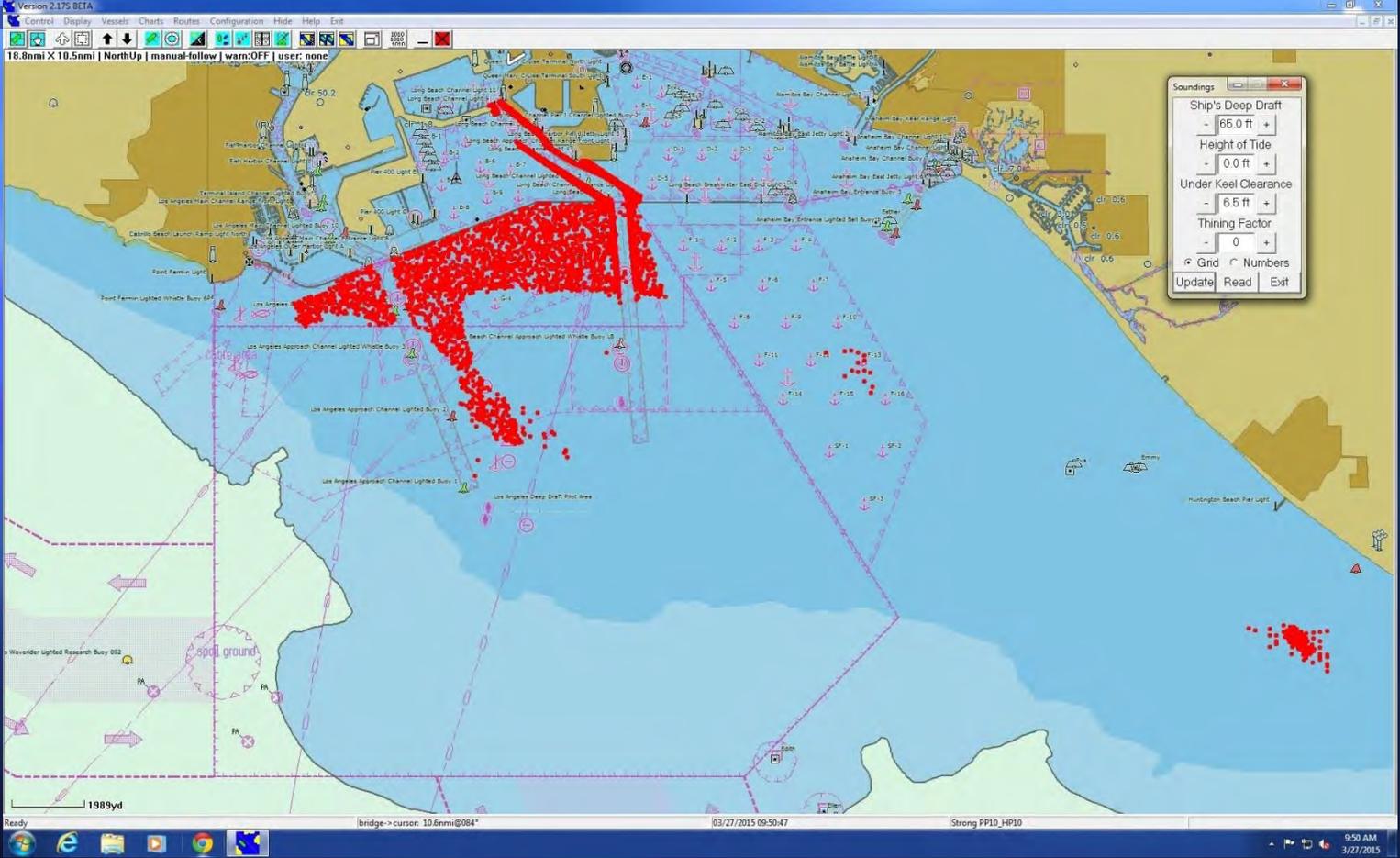
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Dynamic Under Keel Clearance project

charta software

/ ▸ Charta Software

Charta Software

Tailor-made high quality software combined with professional hosting, maintenance and support.

PRÓTIDE

PROTIDE takes predicted:
- ✓ water levels,
- ✓ currents,
- ✓ wave conditions,
- ✓ channel depth,
- ✓ course,
- ✓ ship dimensions, and
- ✓ vertical ship motion (roll/pitch/squat)

…and calculates the under keel clearance & bottom touch probability.

PROTIDE is now used in three harbors in the Netherlands to support the operational process (Port of Rotterdam, Port of Amsterdam & the Eemshaven).
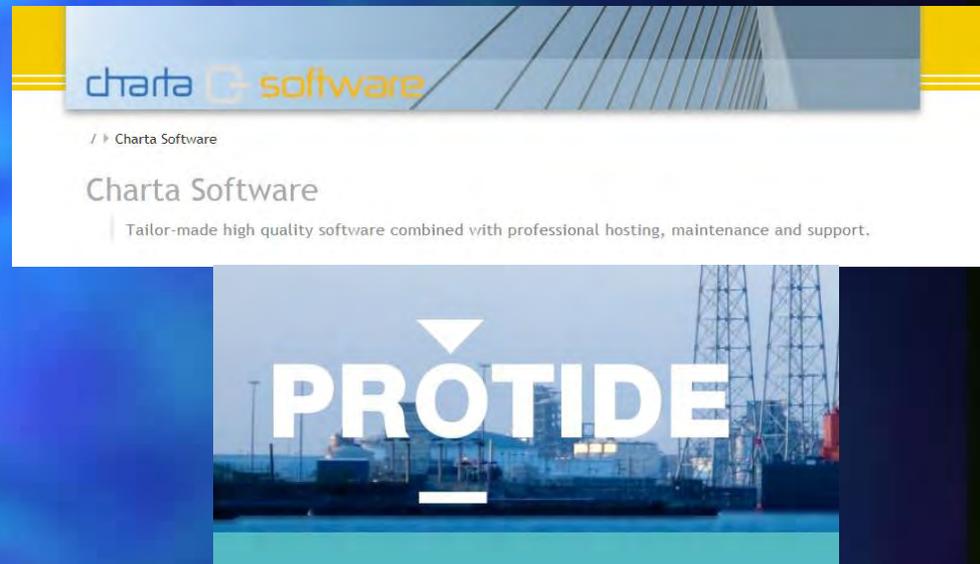
Start with VLCC's and ULCC's first, then expand the project to other critical areas of the Port.

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