



**NTSB** National Transportation Safety Board

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*Office of Marine Safety*

# **Allision of Hong Kong-Registered Containership M/V *Cosco Busan* with the San Francisco–Oakland Bay Bridge**

**Nov 07, 2007**

Tom Roth-Roffy, IIC



# Accident Site





# M/V *Cosco Busan*



© Jan Svendsen

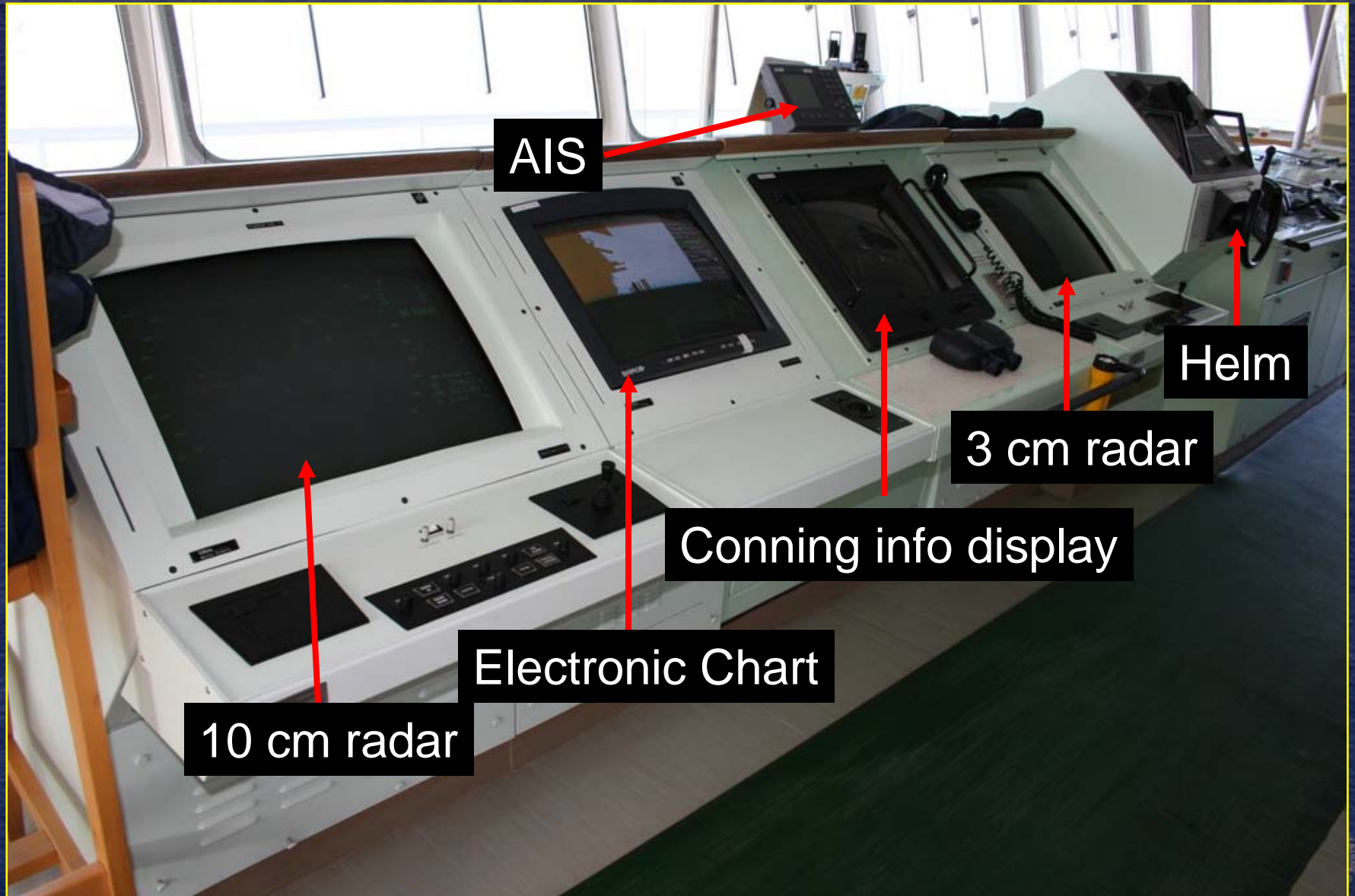
- Type: Container
- Length: 901 ft
- Breadth: 131 ft
- Draft: 40 ft
- Crew: 23

# ***M/V Cosco Busan***

- Navigation equipment
  - 3 cm radar
  - 10 cm radar
  - Electronic chart system
  - Conning information display
  - Automatic identification system (AIS)



# M/V Cosco Busan Bridge



# Bay Bridge



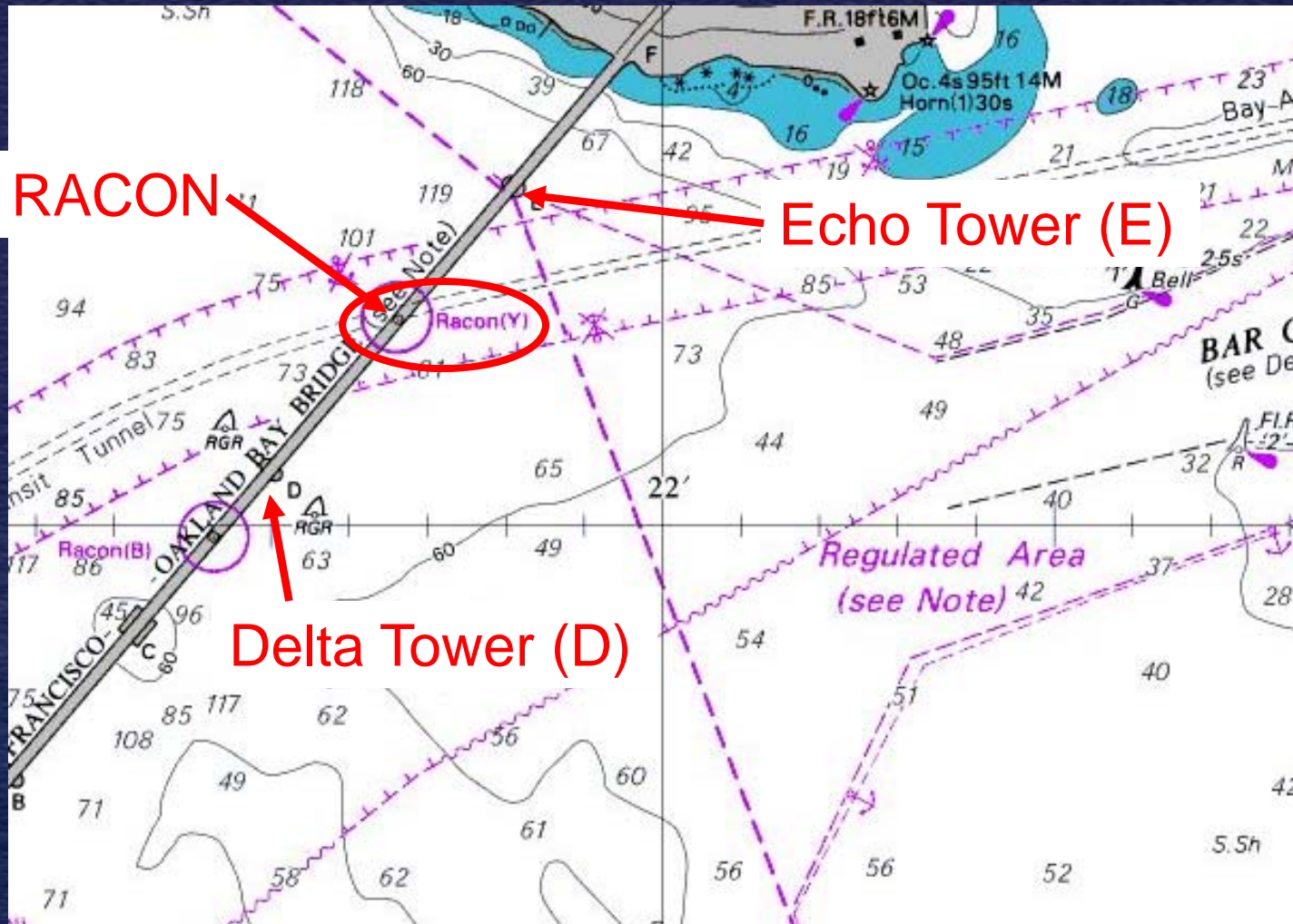
- Built: 1936
- Traffic: 280K/day
- Length: 4.5 miles
- D–E Span: 2200 ft







# Bridge Towers & RACON





# Bridge Approach

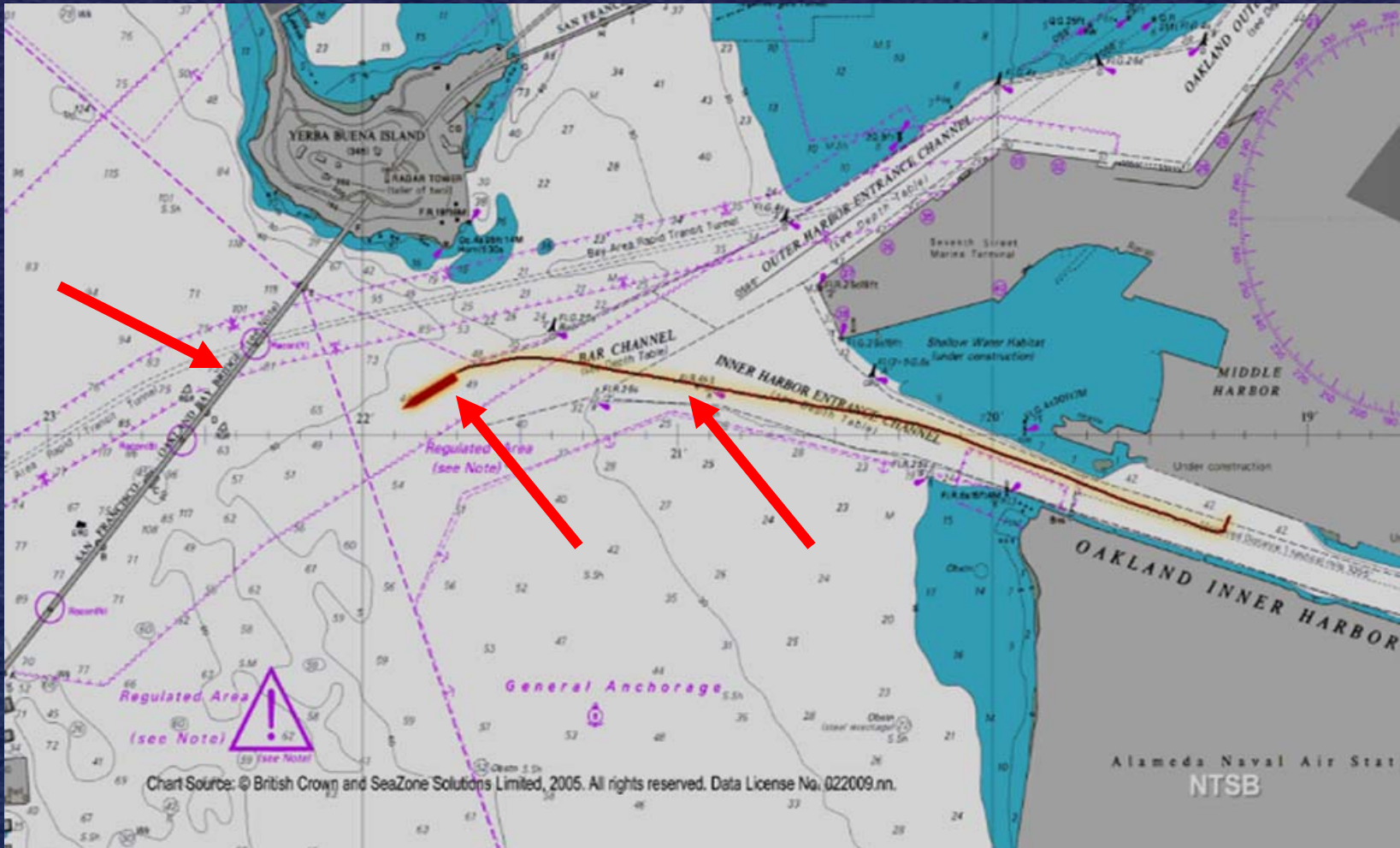


# Timeline – Allision

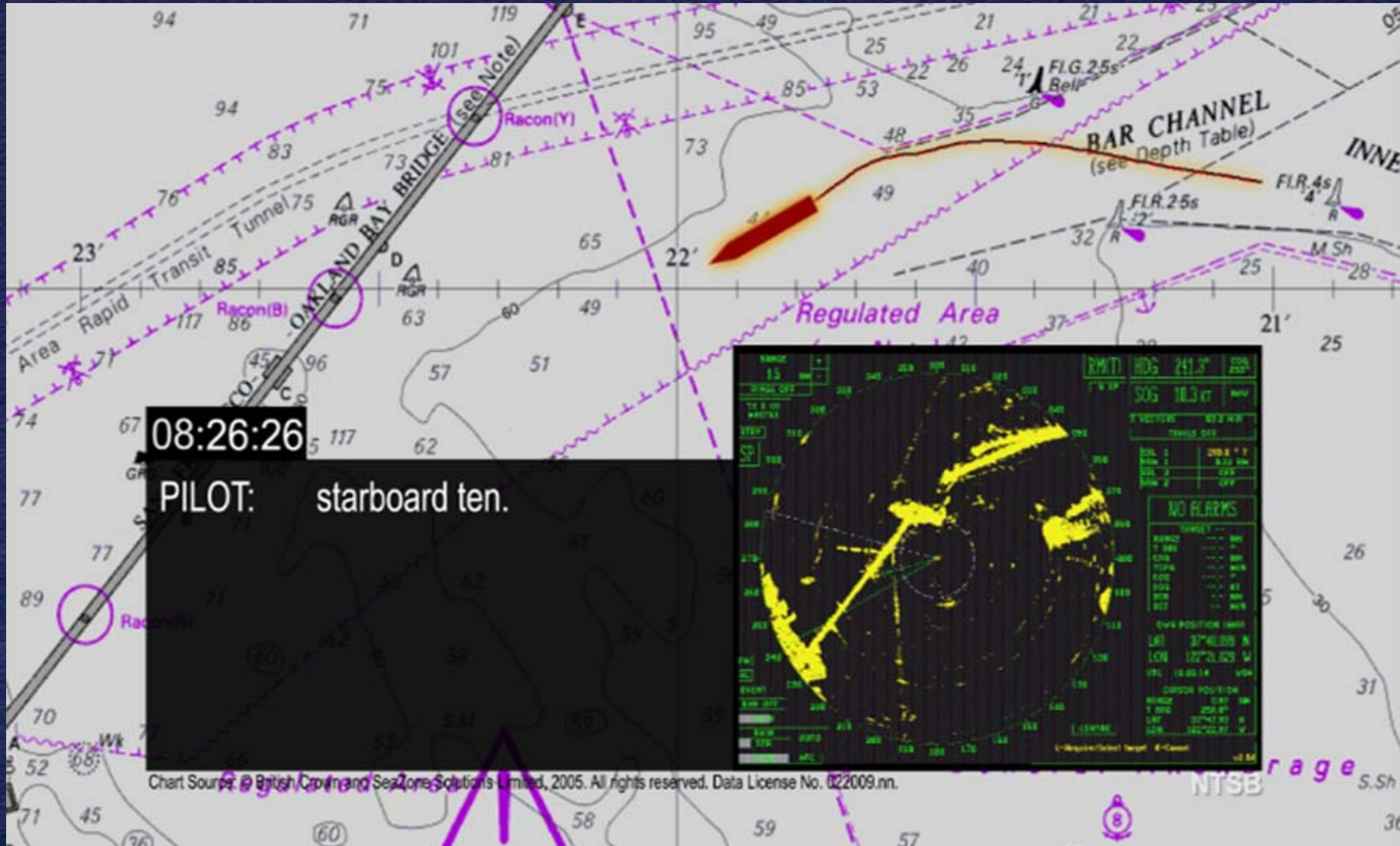
- 0620 – Pilot on board, heavy fog
- 0810 – Ship under way
- 0820 – In bar channel, left turn
- 0822 – Red triangle discussion
- 0823 – Turn to port
- 0826 – Turn to starboard
- 0827 – Callout from VTS
- 0830 – Allision



# Accident Animation – 20 X



# Accident Animation – Real Time



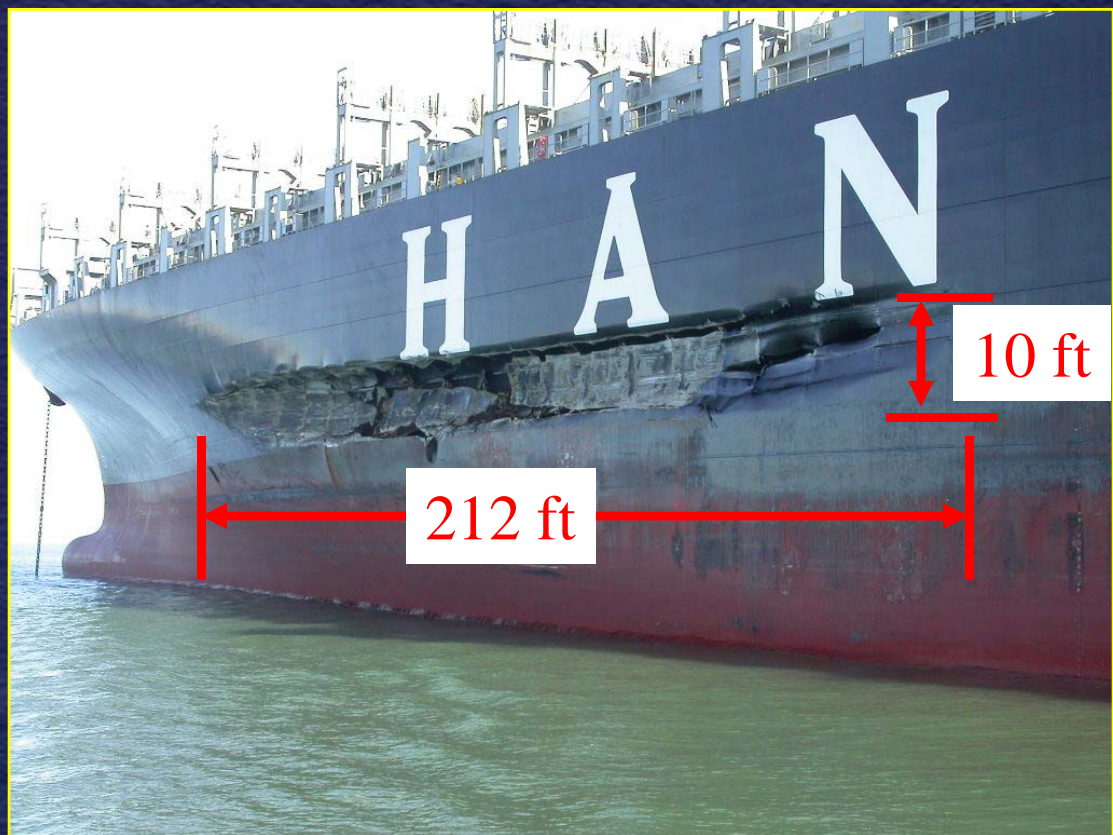
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# Damage to M/V *Cosco Busan*



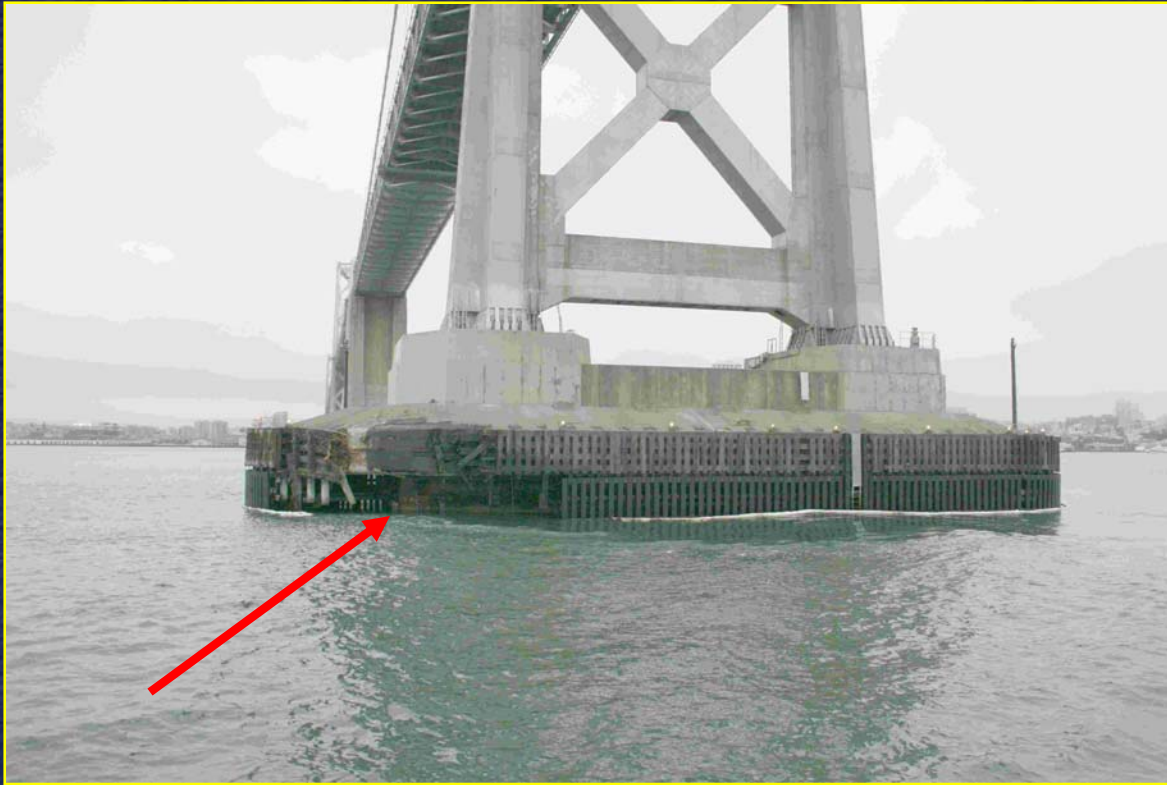
Damage: \$2.1 M

Size: 220 ft x 14 ft

Spilled: 53,500 gal



# Damage to Bay Bridge



Damage: \$1.5 M

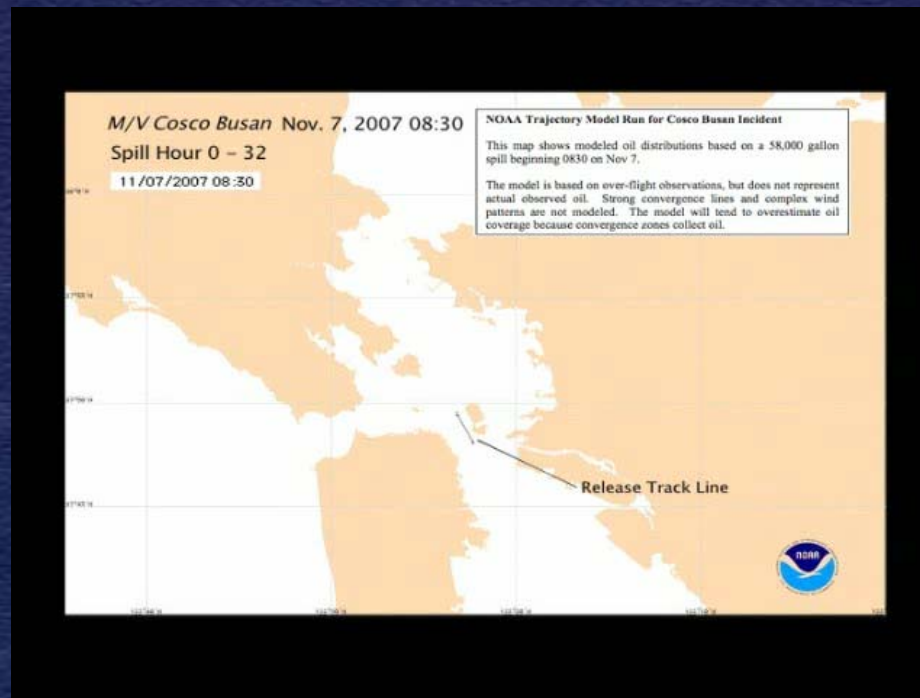
# Timeline – Environmental Response

- 0830 – Pilot notified VTS
- 0903 – USCG Investigation Team responded
- 0945 – Unified Command established
- 1000 – Oil spill response contractors began cleanup



# Environmental Damage

## NOAA Oil Trajectory Animation



# Safety Issues

- Medical oversight of pilot
- Medical oversight of mariners
- Guidance for vessel traffic service
- Procedures for improving the assessment of oil spills
- Training and oversight of ship's crew



# Staff

- Tom Roth-Roffy
- Rob Henry
- Larry Bowling
- Brian Curtis
- Rob Jones
- Liam LaRue
- Barry Strauch
- Monica Mitchell
- Noel Coleman
- Bob Trainor
- Crystal Thomas
- Paul Stancil
- Chris Babcock
- George Black
- Dwight Foster
- Mitch Garber
- Mike Brown
- Peter Knudson
- Chris Julius
- Robert Combs

# Parties to the Investigation

- U.S. Coast Guard
  - Fleet Management, Limited
  - San Francisco Bar Pilots Association
  - American Pilots' Association
  - California Board of Pilot Commissioners
  - California DFG – Office of Spill Prevention and Response
  - Sperry Marine
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- Flag State – Hong Kong accident investigation agency



# Staff Presentations

- Tom Roth-Roffy – bridge response and bunker tank protection
- Rob Jones – performance of pilot & master
- Barry Strauch – influences on performance of pilot & master
- Mitch Garber – medical history and effects of medications
- Barry Strauch – pilot oversight
- Barry Strauch – corporate oversight
- Larry Bowling – vessel traffic service
- Crystal Thomas – environmental response

# Bridge Response - Caltrans

- Assessed seismic readings within minutes
- Bridge inspection within 1 hr
- Seismic sensors registered minimal movement
- Fendering system protected bridge & limited damage to ship



# New IMO Rule Protecting Fuel Tanks

- MARPOL 73/78, Annex I, Rule 12A
- Regulation in force since January 2007
- Applies to nontank ships with > 158,000 gallon fuel capacity
- Limits maximum tank capacities
- Designates fuel tank locations on board to minimize risk of breach





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