

Marine Exchange of Southern California and Vessel Traffic Service of Los Angeles & Long Beach



Information brief

To

**NOAA Hydrographic Services
Review Panel**

A Local Perspective

5 March 2024

**Captain Kip Louttit
USCG, Retired
Executive Director**

***Safe, Secure, Efficient, Reliable &
Environmentally Sound Maritime Transportation***

Providing Maritime Peace of Mind Since 1923

Agenda

- Marine Exchange
 - Maritime Info Service
 - Vessel Traffic Service
- Ports of Los Angeles and Long Beach
- Input from Local Partners

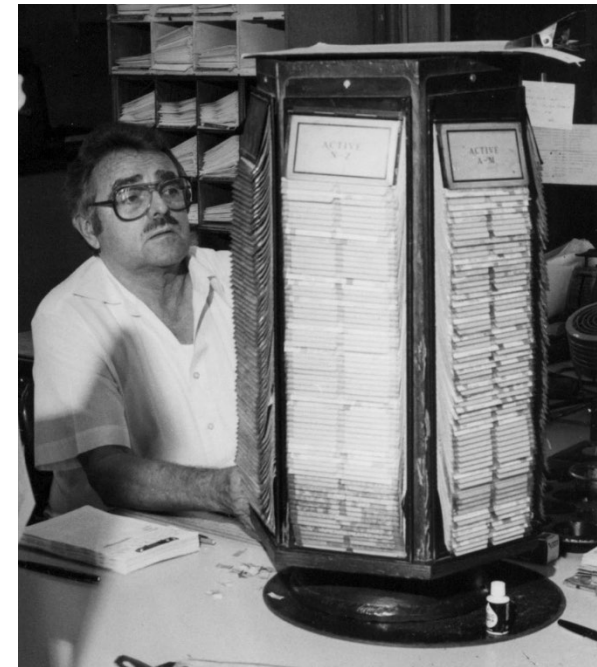
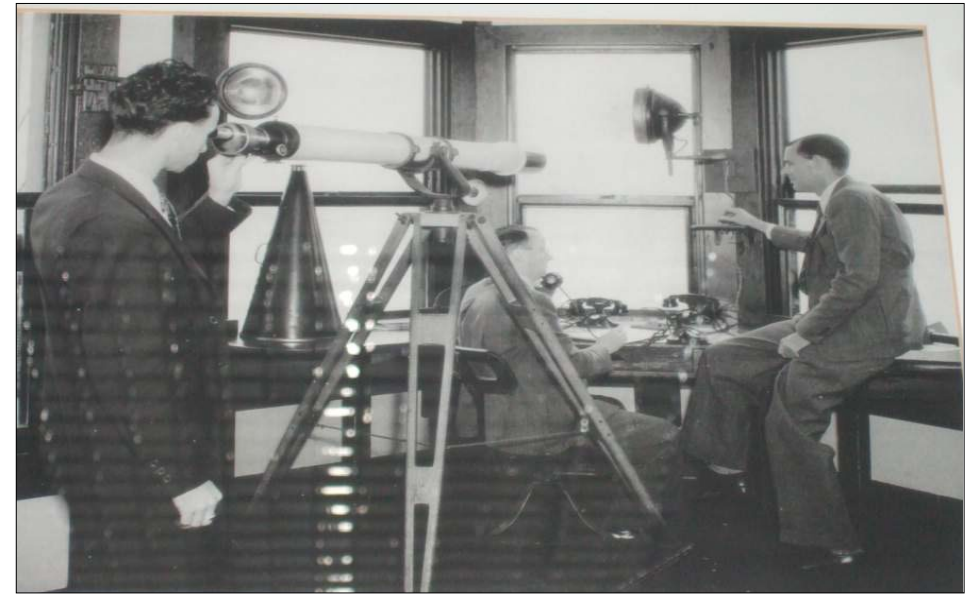


Marine Exchange and approaches to
Los Angeles & Long Beach Harbors

Q/A we go along OK

MX SoCAL: 1923 to 2024

101 years of changing functions, processes, and technology to meet needs of customers, partners, vessels, and ports.



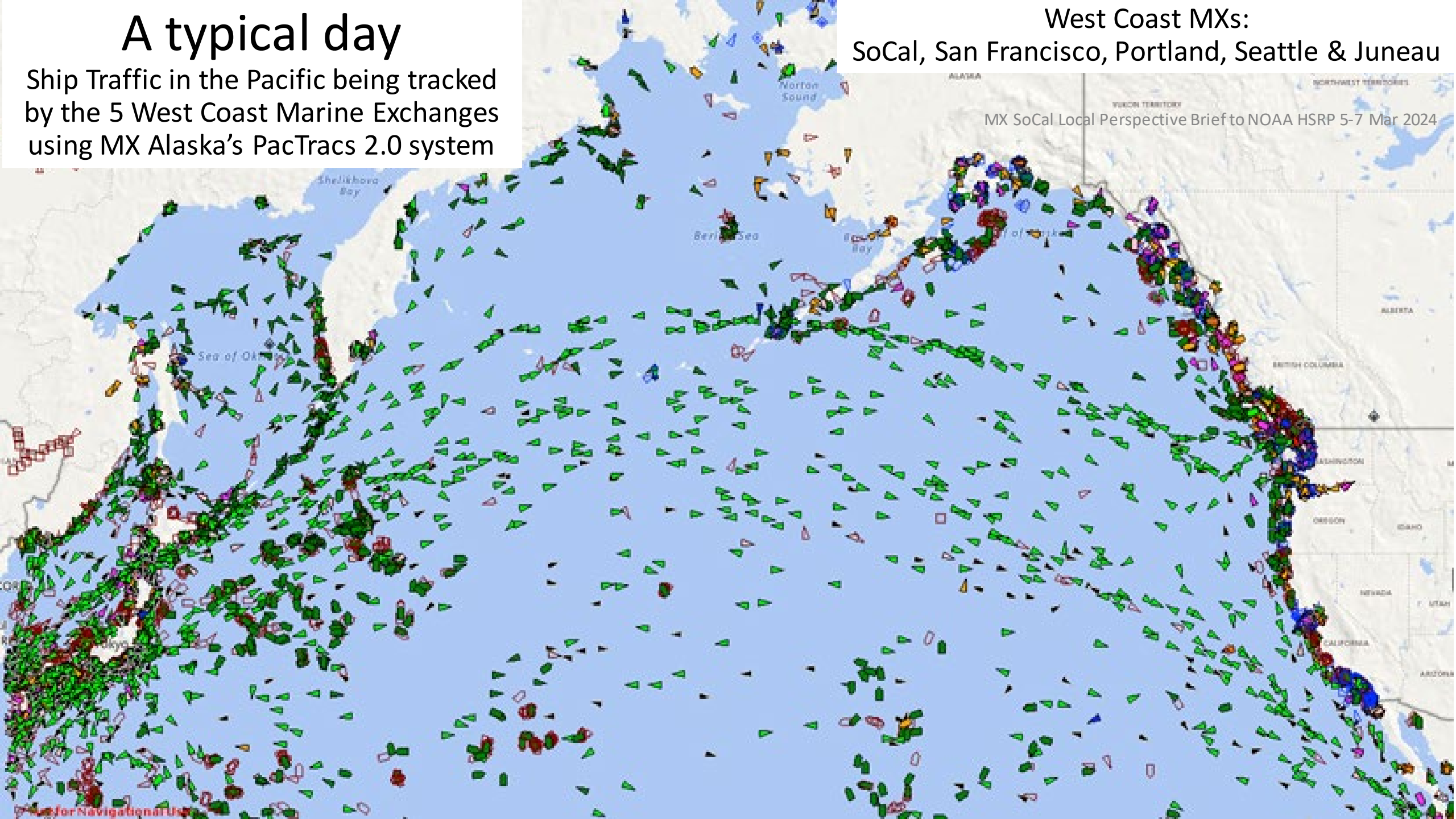
Megaphones, telescopes, blackboards & *spindle* replaced by state of the market technology

A typical day

Ship Traffic in the Pacific being tracked by the 5 West Coast Marine Exchanges using MX Alaska's PacTracs 2.0 system

West Coast MXs:
SoCal, San Francisco, Portland, Seattle & Juneau

MX SoCal Local Perspective Brief to NOAA HSRP 5-7 Mar 2024

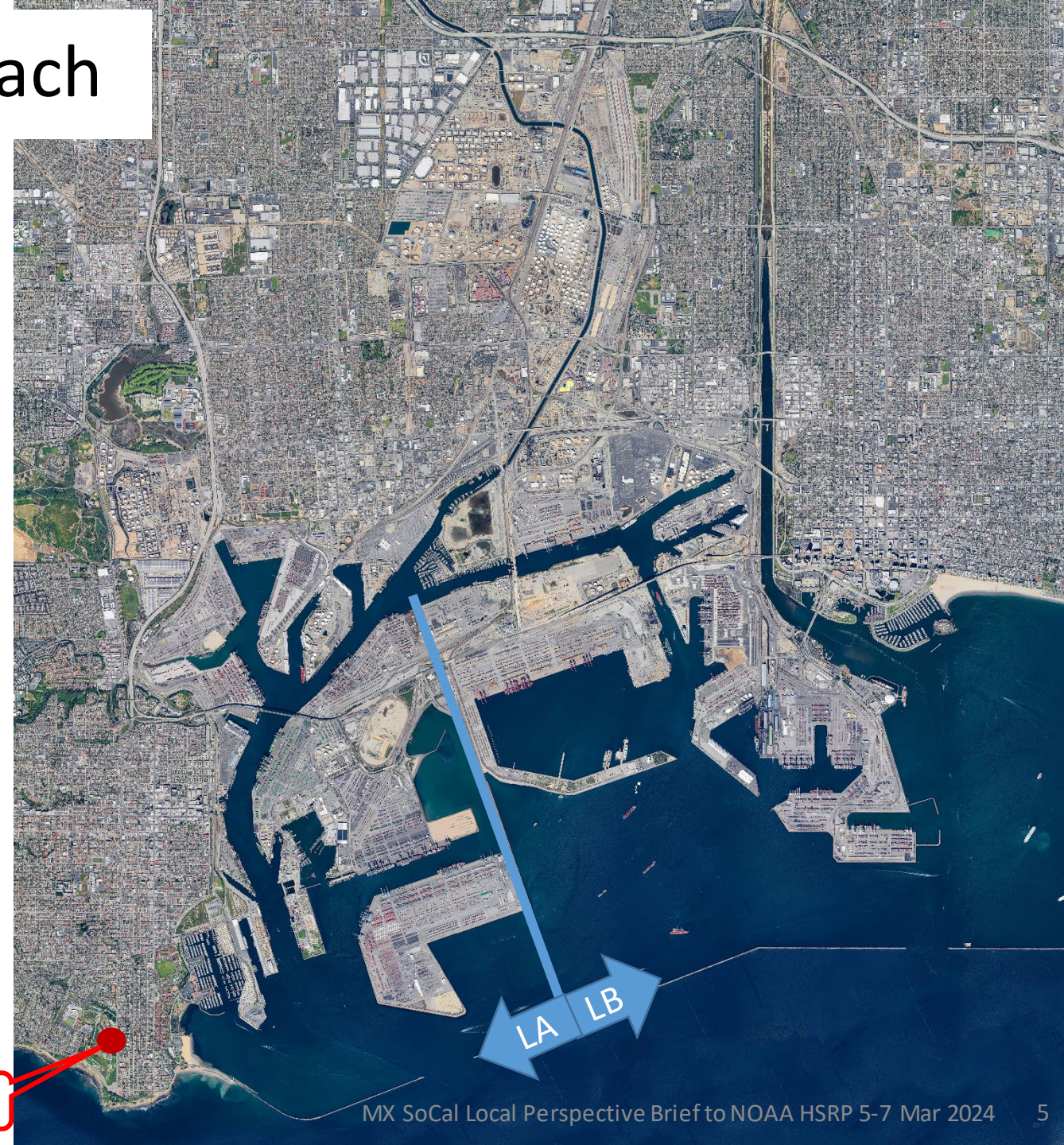


Ports of Los Angeles – Long Beach

- Nation's Largest Container Port Complex
 - LA #1, LB #2, NY/NJ #3
- World's 9th busiest port complex by container volume 2017-2023 (#1-8 in China and Korea)
- **16.6M TEUs 2023** (19.0M 2022, **20.0M 2021**, 17.3m 2020, 16.9M 2019, 17.5M 2018)
- ~\$1.04B cargo value *per day*
- ~37% of imports to U.S. & 21% of exports
- Top trading partners: China, Japan, Vietnam & South Korea
- Top trading routes: NE Asia, SE Asia, India Sub-Continent, Northern Europe & Mexico/South America
- 1 million cruise ship passengers
- ~50% of California's oil; only 5-day supply ashore
- ~500,000 autos
- Supports ~1 in 9 jobs 5 county region & ~2.5M jobs nationwide

Updated 15 February 2024

MX





1 TEU

“TEU”
Twenty Foot
Equivalent
Unit



Containers stack great

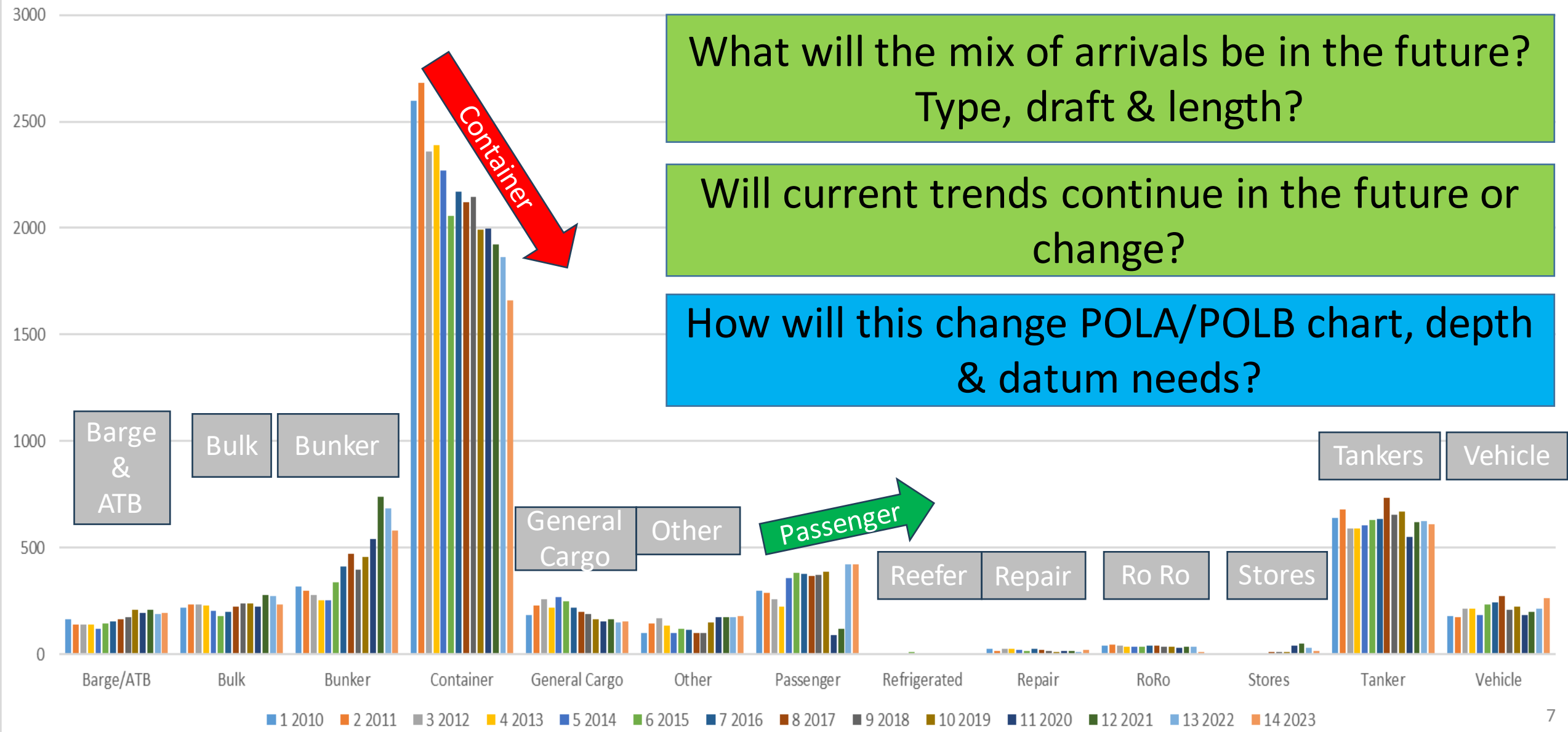


2 TEUs

1 TEU

1 TEU

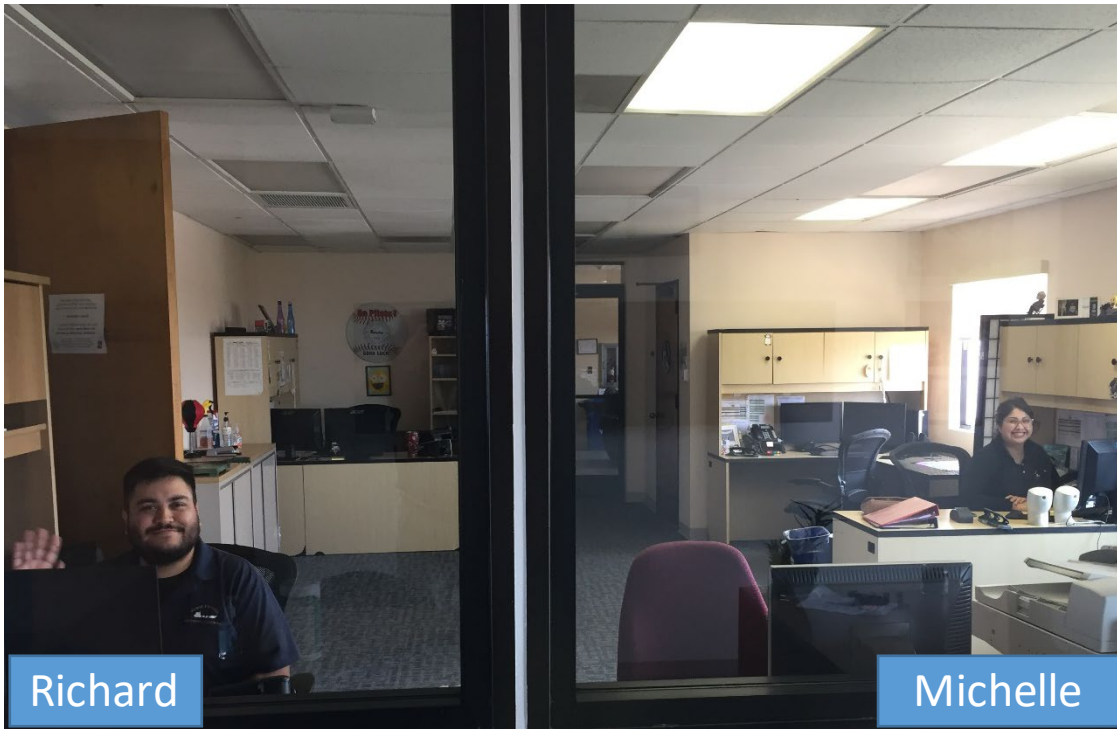
Arrivals by Type to Los Angeles and Long Beach 2010-2023



What we do – 2 main business lines

Maritime Information Service

- 1923 to present
- Gather and collate schedules for ~4,550 vessels per year arriving, departing & moving around ports of LA/LB



Richard

Michelle

Vessel Traffic Service LA/LB

- 1994 to present
- Unique Public/Private Partnership between MX, USCG & State of California
- Maritime version of Air Traffic Control
- ~28,000 vessel movements per year



OS1 Chris Thomas, USCG

The unique CG/MX Public/Private Partnership VTS LA/LB is Safe, Effective & Efficient



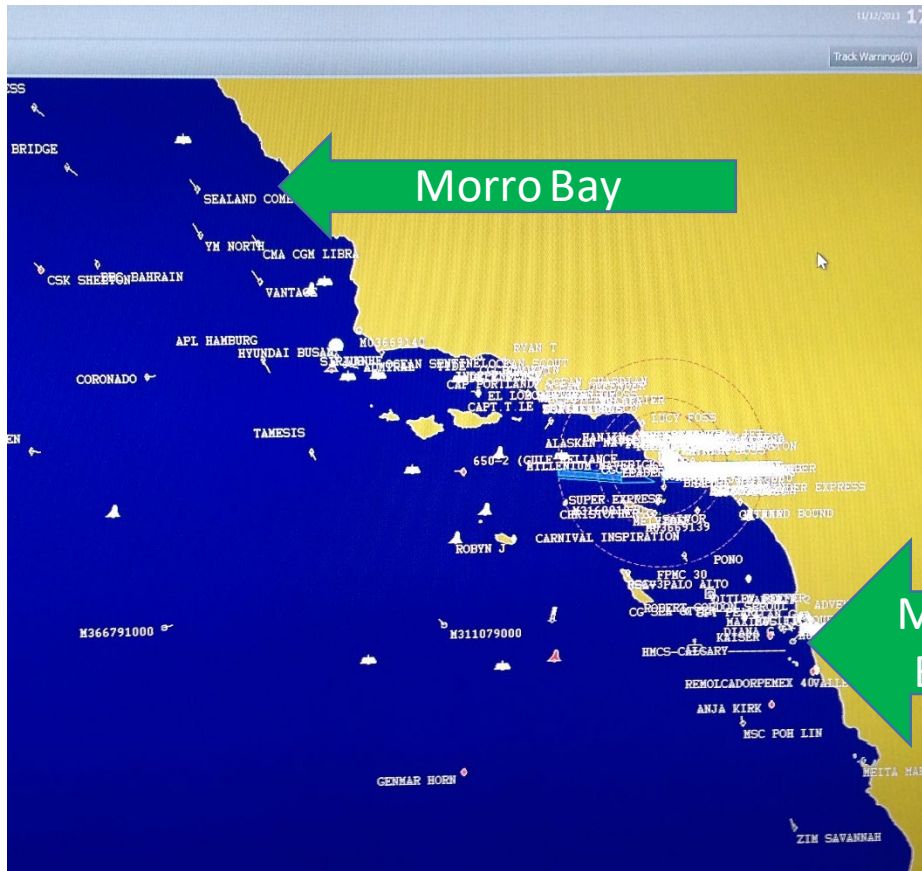
- 11 MX members of VTS
- 6 Coast Guard members
- Each VTS Watch includes:
 - 2 Marine Exchange Controllers, funded by user fees
 - 1 CG Controller, funded by the CG



Jon & Nick

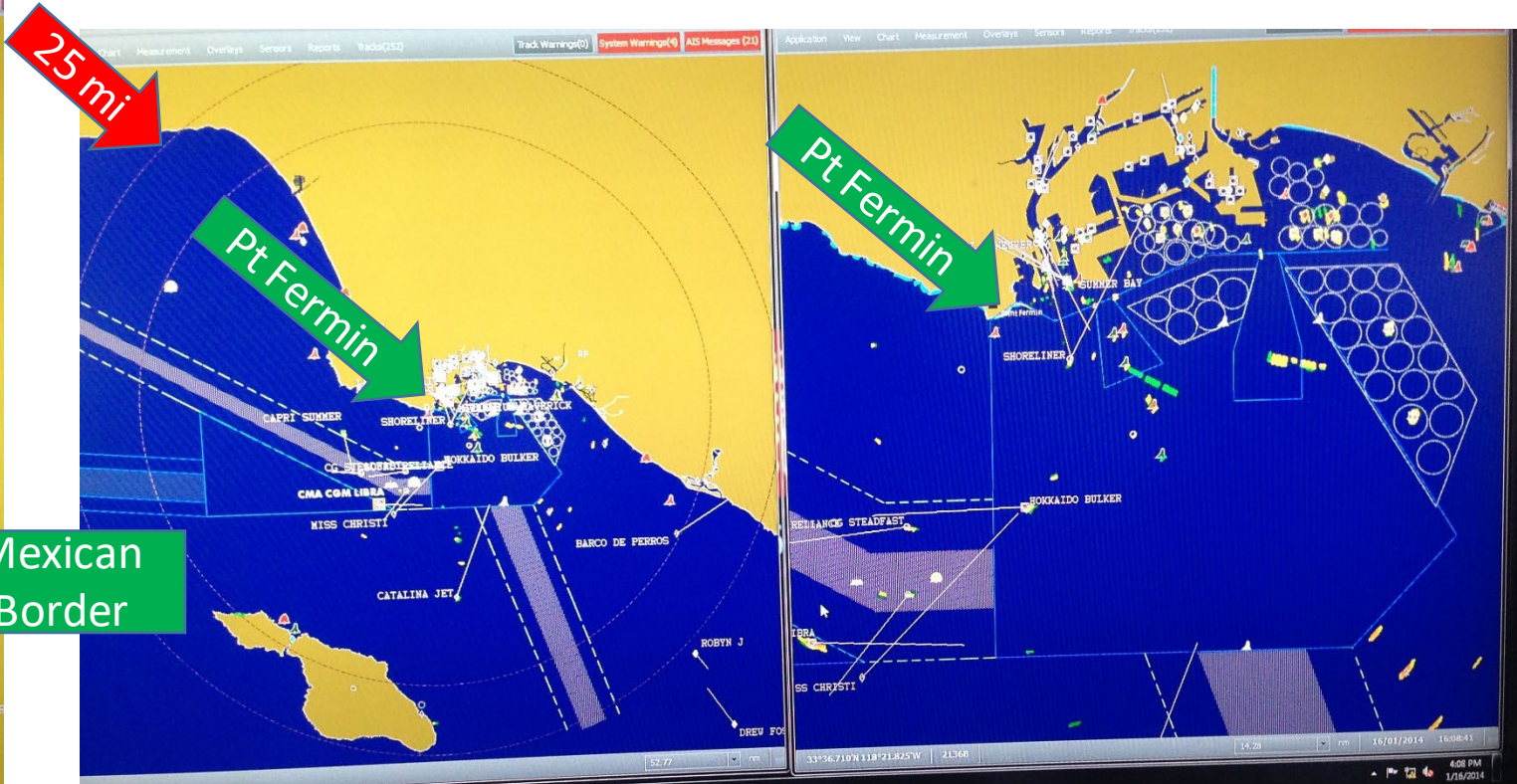
Maritime Domain Awareness for Safety and Security

MX can reliably see all vessels using AIS from Morro Bay to the Mexican Border and out 100 miles



Vessel Traffic Control:

1. Marine Exchange's VTS LA/LB controls traffic within 25 miles of Point Fermin and the outside anchorages
2. Pilots control traffic inside the breakwaters:
 - a. Los Angeles
 - b. Jacobsen Pilot Service (Long Beach)... including inside anchorages



In a sense, a 3 Sector VTS



Busy MX VTS operations;
~28,000 vessel movements/year

Volume of Traffic
 Largest ships in the world

Non-Participating vessels
 in lanes and
 precautionary area

Cross traffic to/fm the coast
 and Catalina

Commercial vessel “Incidents”
 Loss of Propulsion & Steering

VTS Sequence: Monitor, Inform, Recommend, Direct

Input to HSRP from Local Partners

- MX SoCal
- Battleship IOWA Museum
- Los Angeles Pilot Service
- Chevron Offshore Marine Terminal, El Segundo
- Jacobsen Pilot Service
- Los Angeles Port Police

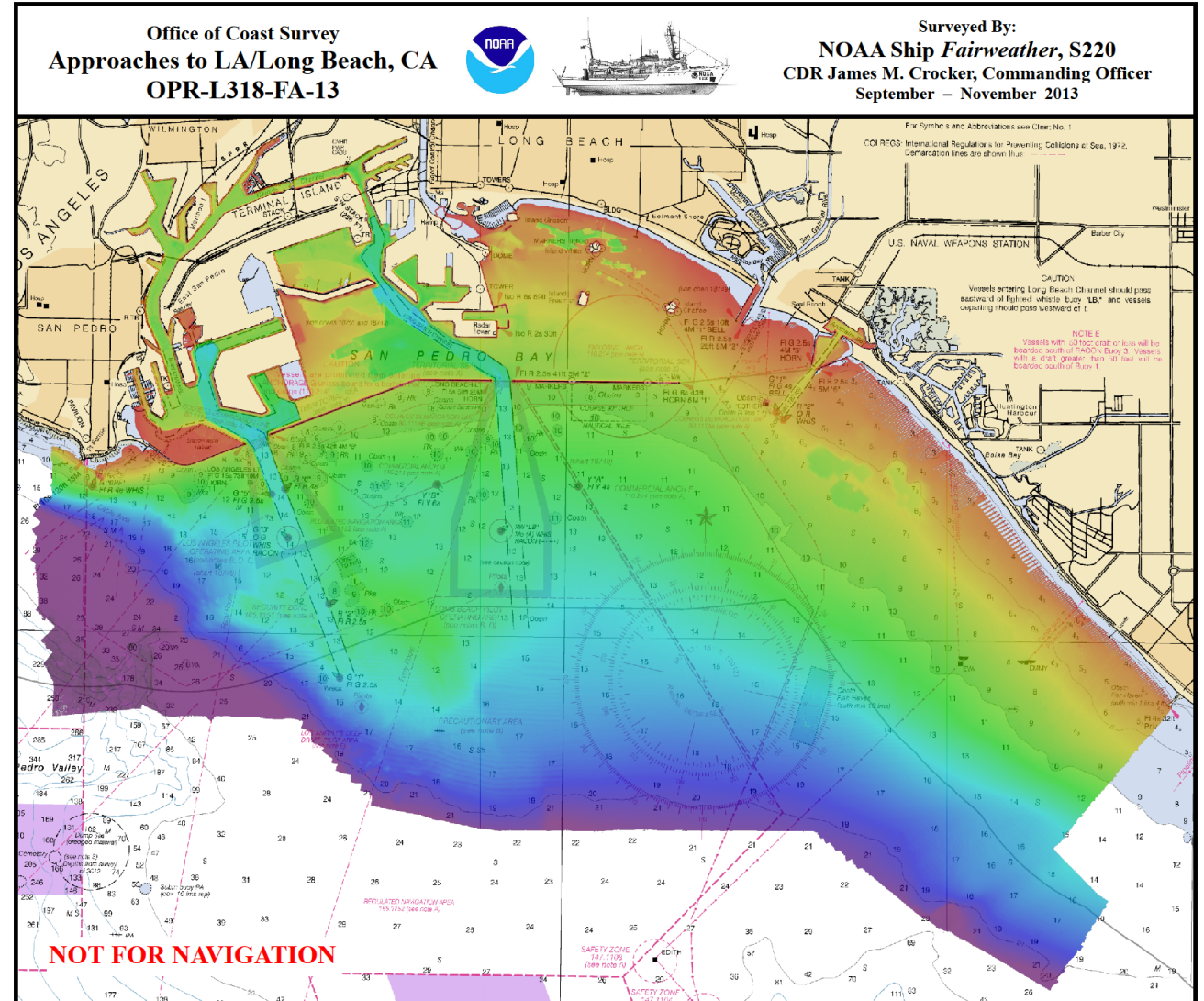


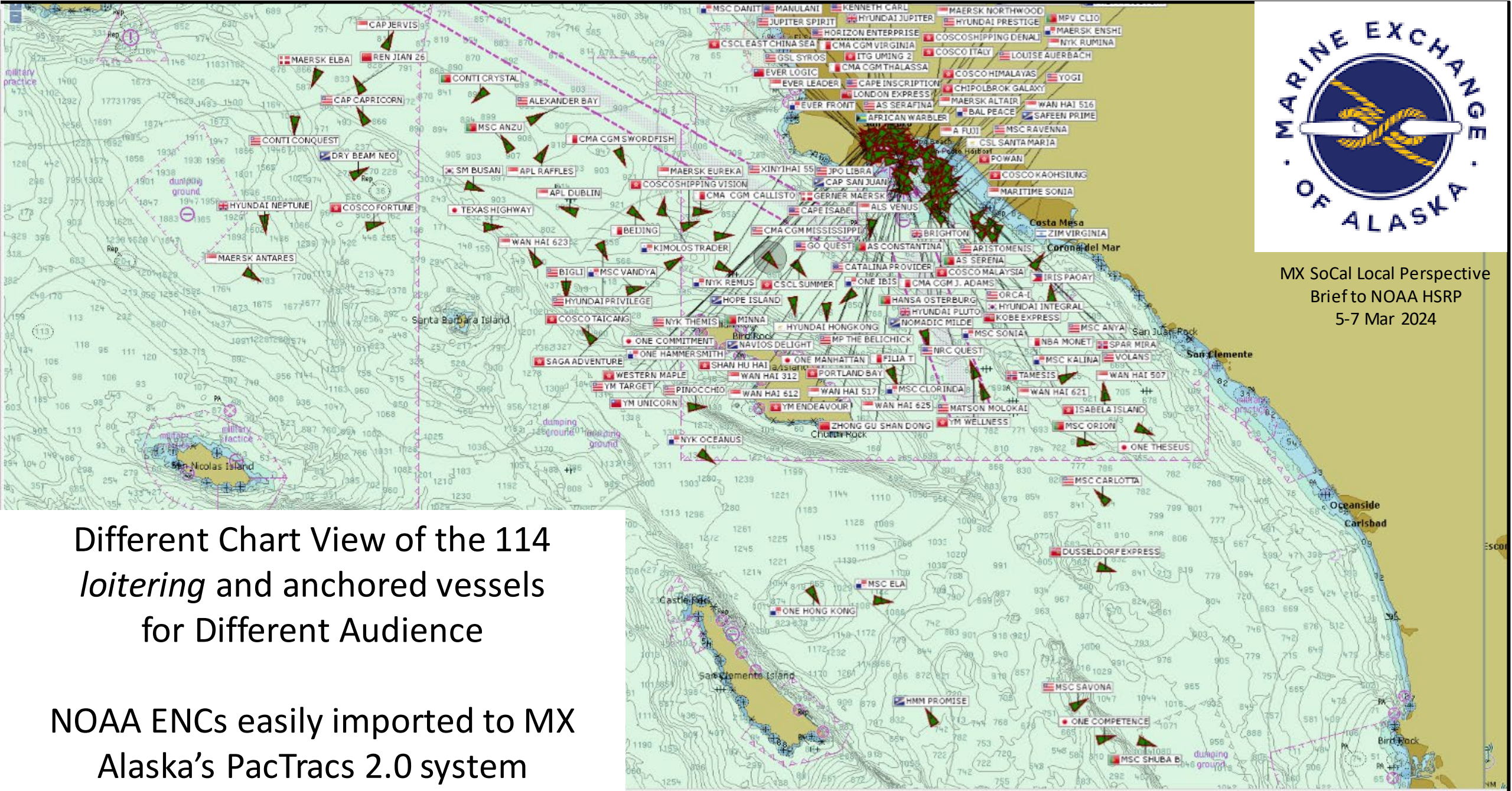


Bottom Survey by NOAA Ship FAIRWEATHER 2013
 Resurveyed by NOAA Ship RAINIER 2018
 Thank you, NOAA, for the bottom surveys!

LA/LB Anchorages

Deeper draft ships (to 69 ft) at anchor
 require accurate depths to be safe





MX SoCal Local Perspective
Brief to NOAA HSRP
5-7 Mar 2024

Different Chart View of the 114
loitering and anchored vessels
for Different Audience

NOAA ENC's easily imported to MX
Alaska's PacTracs 2.0 system

Mike Getscher, Executive Vice President and COO Pacific Battleship Center, Battleship IOWA Museum

Kip,

The IOWA team has been working with our friends at NOAA and our engineering partner Moffat & Nichol to determine a better solution for the long-term mooring situation for the ship. Although our 100-year wind and current conditions are handled by the mooring system, we suffer from damage due to surge events which are outside the design criteria for the [mooring] system. During these conversations, we've been repeatedly asked for current data within the channel, and it is this that we'll draw attention to for your upcoming meetings.

Charts/Tides and Tide Gauges/Datums are critical to my operations because it allows us to plan for surge events, and provides data for engineering analysis.

I recommend the HSRP recommend NOAA improve current and/or surge measurement within the main [LA] channel.

Best, Mike



MX SoCal Local Perspective Brief to NOAA HSRP 5-7 Mar 2024



Captain John Betz, Chief Pilot, POLA

Kip,

I have given this some thought and I do not have any meaningful recommendation.

I am pretty happy with the service/tools we get from NOAA. Our charts are good. Our P.O.R.T.S. info is good.

This being a seaport (located close to the sea) our actual water levels hardly vary from predicted, so we can work with predicted tides just fine.

I always welcome improvements to our precision positioning info and PPU [portable piloting unit] display of same, but that is not in NOAA's wheelhouse.

I would love to see system innovations wherein more ship's info could be pushed to the pilot's PPU – (perhaps through the pilot plug, e.g., rudder angle, engine order, fathometer reading, radar overlay, etc.). But that's a whole different "Buck Rogers" sort of discussion.

Sincerely,

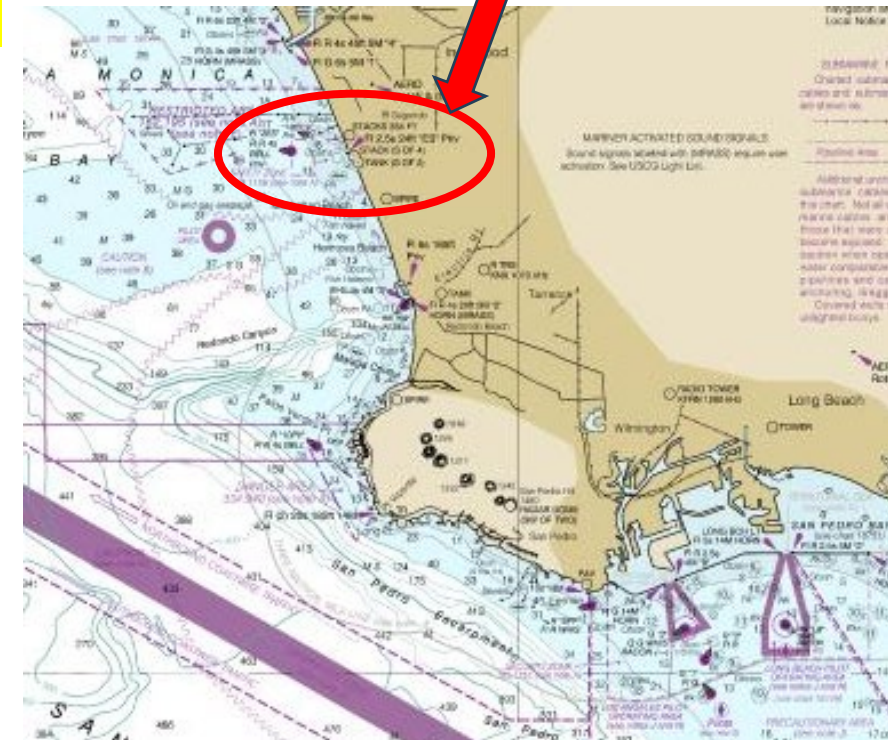
A happy Pilot.



Mr. Dave Selga, Marine Shipping Manager Chevron Shipping Company, LLC El Segundo Marine Terminal, CA



1. Charts/Tides and Tide Gauges/Datums are critical to our operations at El Segundo Marine Terminal because ultimately these combined items determine the water available to calculate under keel clearance (UKC). UKC is the key mitigating factor in preventing groundings.
1. We recommend the HSRP recommend NOAA investigate dropping the term “charts”. This term is becoming outdated. Almost all waterborne navigation is done on Electronic Navigational Charts (ENC) or Electronic Chart Displays (ECDIS). The term “charts” has traditionally been used to refer to paper charts. Using the acronyms ENC or ECDIS is now common knowledge and a sign of the times. Charts are now considered antique, and NOAA should show distinctions between use of the terms and functionality of ECDIS or ENC with regards to safety of navigation.

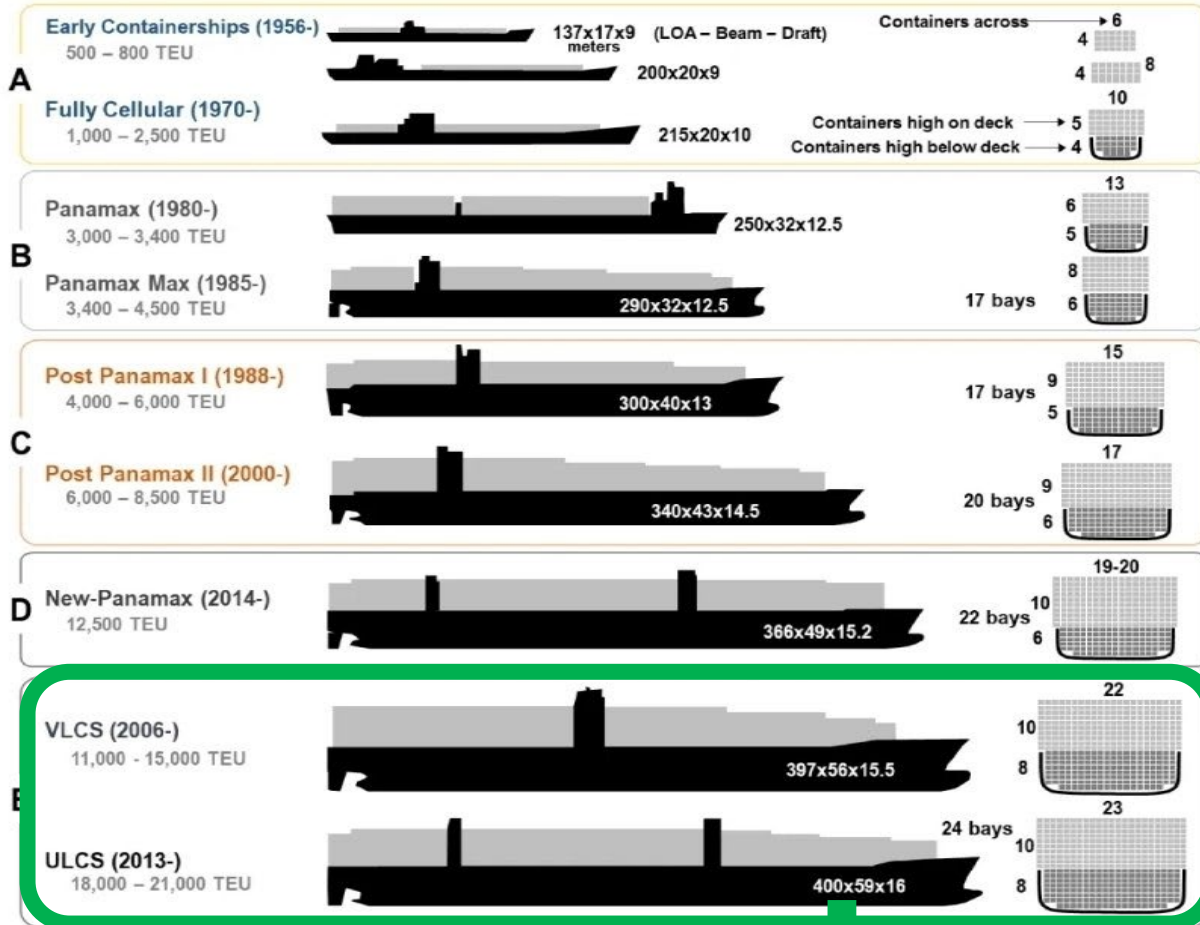


Best regards,

Dave

Evolution of Containerships

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 Perspective Brief to NOAA
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Evolution of Containerships



CMA CGM Benjamin Franklin, 18,000 TEUs, 399m=1,310'
 Arriving Long Beach March 2017



450' WW-II
 Lane Victory

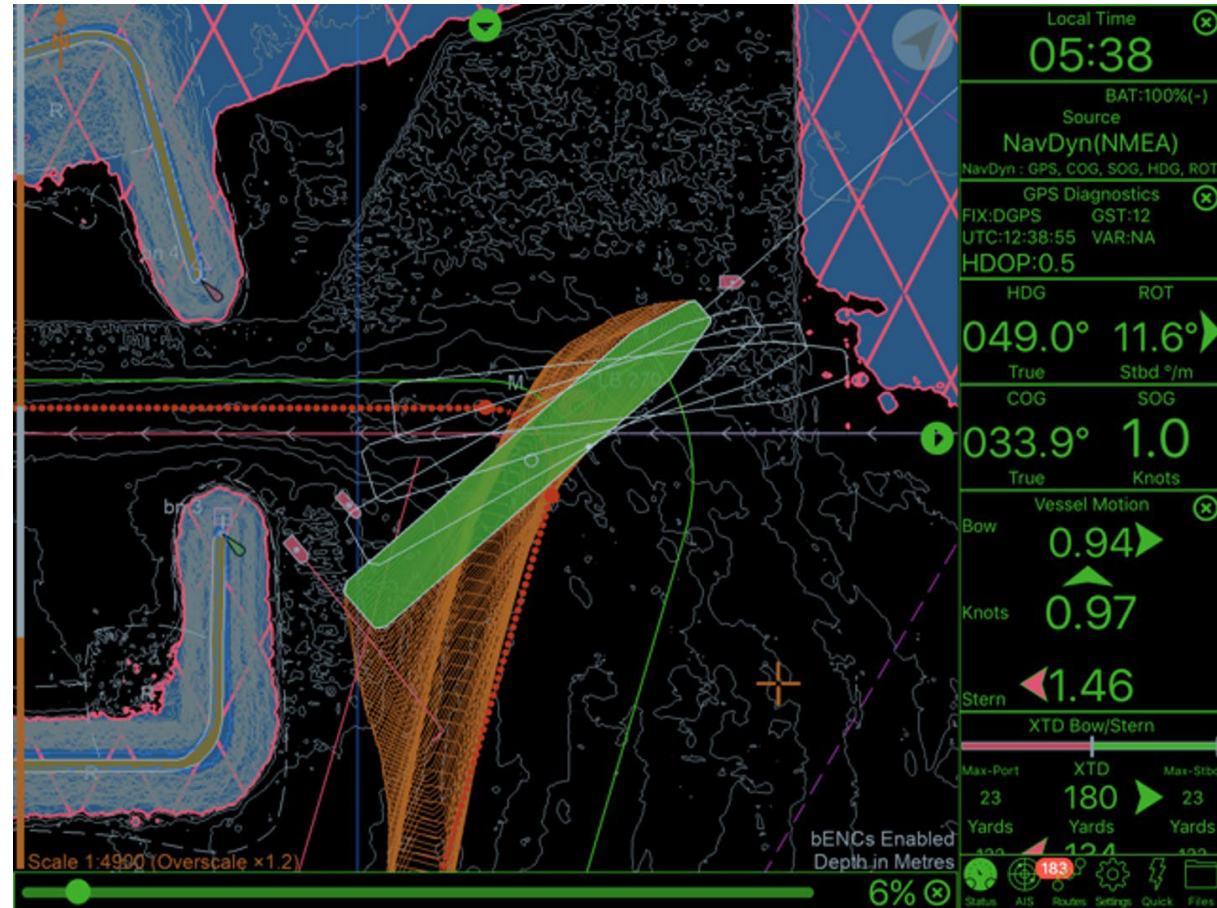
MSC MIA, 23,000 TEUs 400m=1312'
 Arriving Los Angeles 1 April 2020

18,000 TEU CMA/CGM Benjamin Franklin Entering Port of Long Beach Pacific Container Terminal Pier J South, 2017

Largest container ship, ever, at the time



Helo View



Portable Piloting Unit (PPU) View

Smokestack

Pilot House

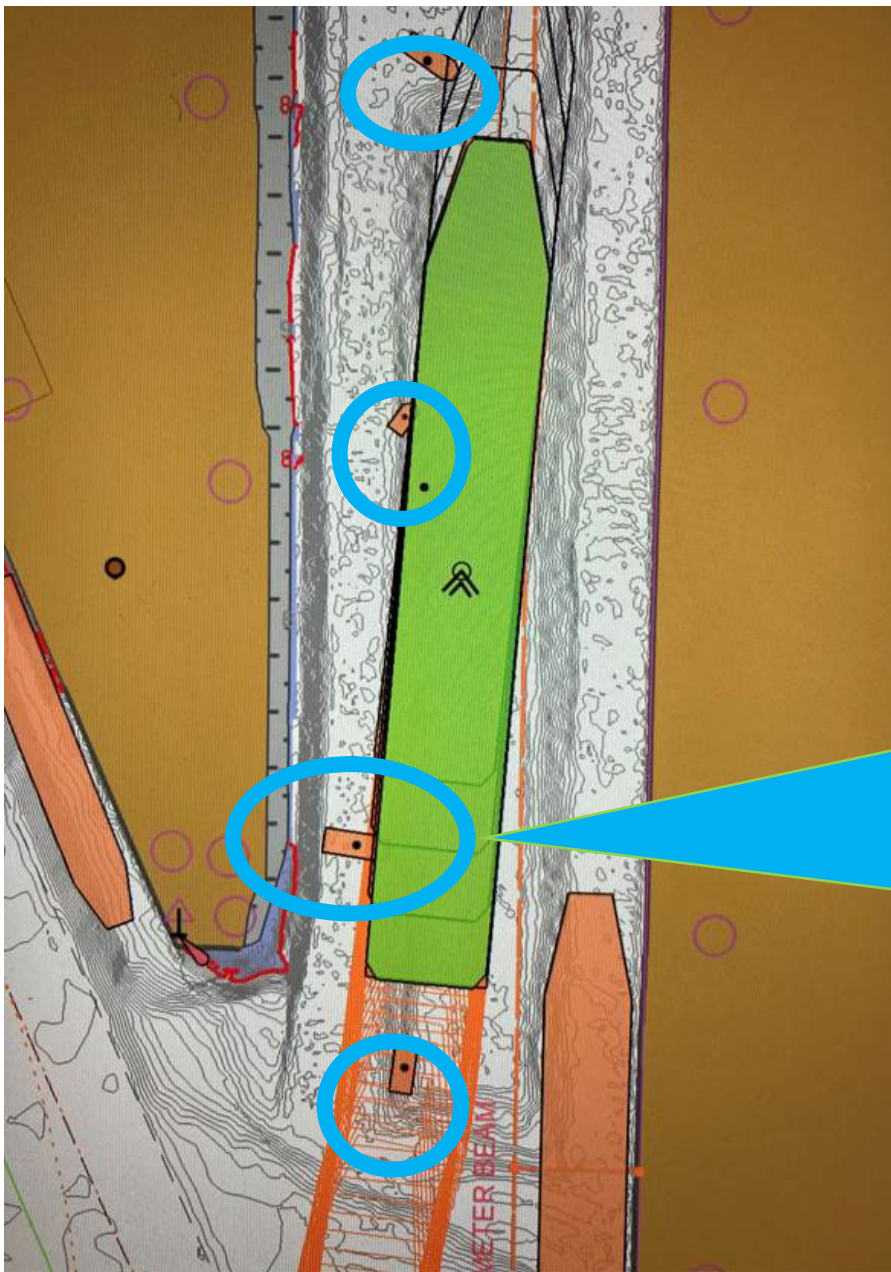


MSC FLAVIA
LOA 366 Meters
(1,200 Feet)
12,400 TEUs

Mooring at Total
Terminals
International (TTI)

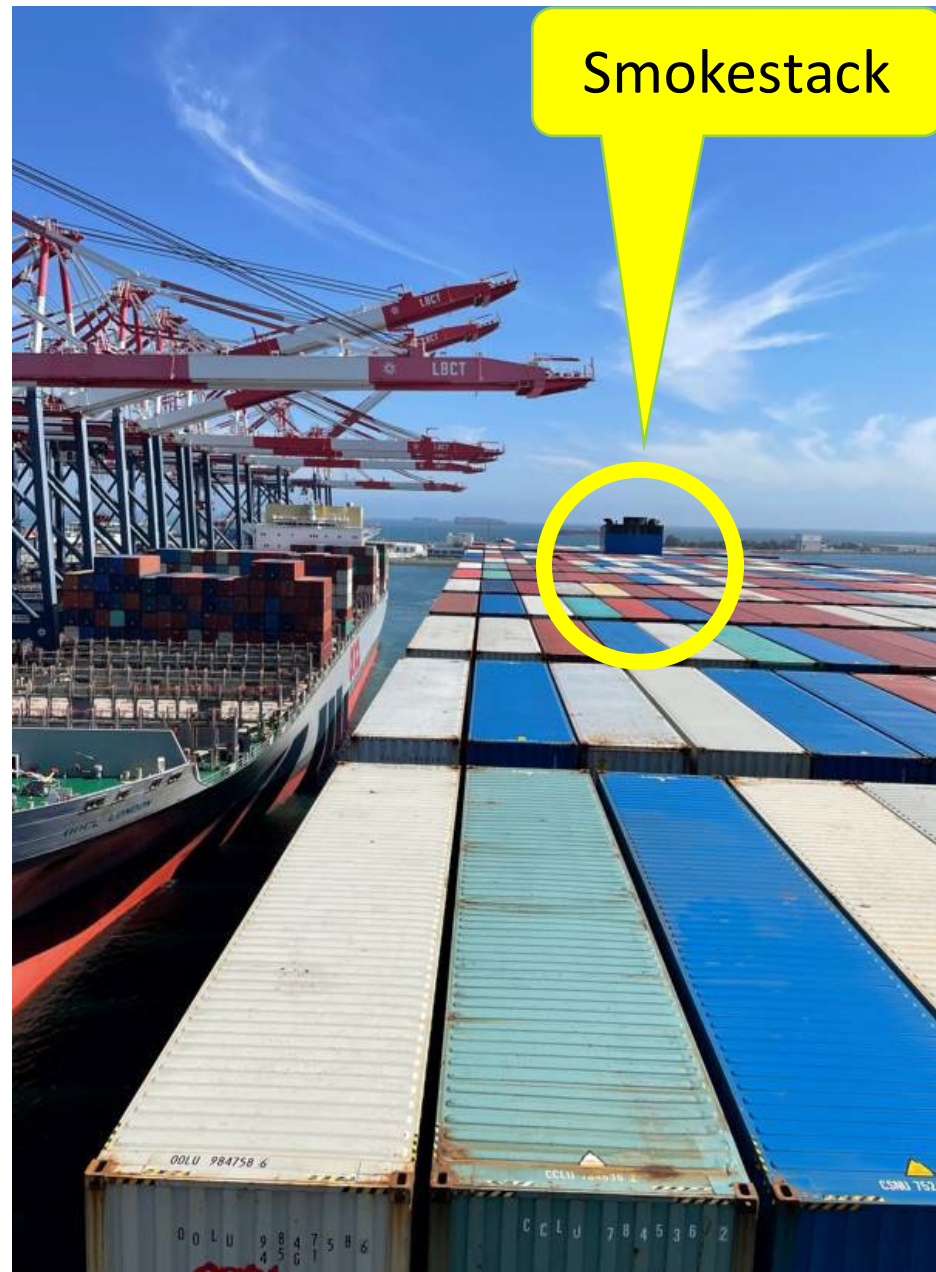
Using 3 assist
Tugboats

Entering Long Beach Container Terminal



Portable
Piloting
Unit
(PPU)
View

4
assist
tugs
need
to fit,
too!

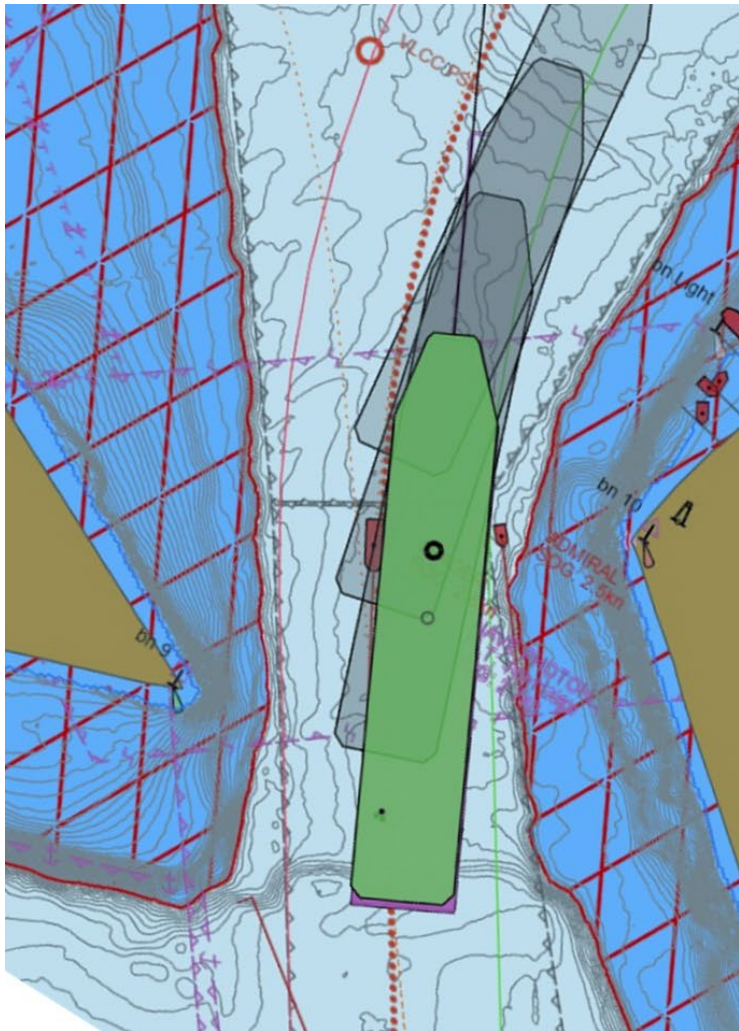


Smokestack



Looking
Aft from
Pilot
House

Precision Navigation – Turn at Pilot Station enroute Very Large Crude Carrier (VLCC) Berth POLB T-121



VLCC
(Tanker)
CHLOE

26 Oct
2015

Portable Piloting Unit (PPU) View

LOA 1,092 feet
Draft 64.9 feet

Beam 196 feet
320,137 DWT

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Perspective Brief to NOAA
HSRP 5-7 Mar 2024

Captain Kevin McCloskey, Los Angeles Port Police (LAPP),

Tide and datum matter in Port, Security, and Law Enforcement Operations



Charts are method of producing exact location of a submerged item, travel to destination, and to develop and maintain search grids accurately

Undersea objects on charts used to:

- Identify waypoints for Search and Rescue and Criminal Investigations

- Mark unseen navigational hazards

- Provide advance knowledge of terrain we plan to survey or search with divers or ROVs

Charts identify previous hazards, debris fields, wrecks, and other submerged obstacles that would hinder our operations or potentially damage sensitive SONAR equipment

Regarding datum, when land and survey markers are moving, who/how decides whether to use moving survey markers or GPS for positions.



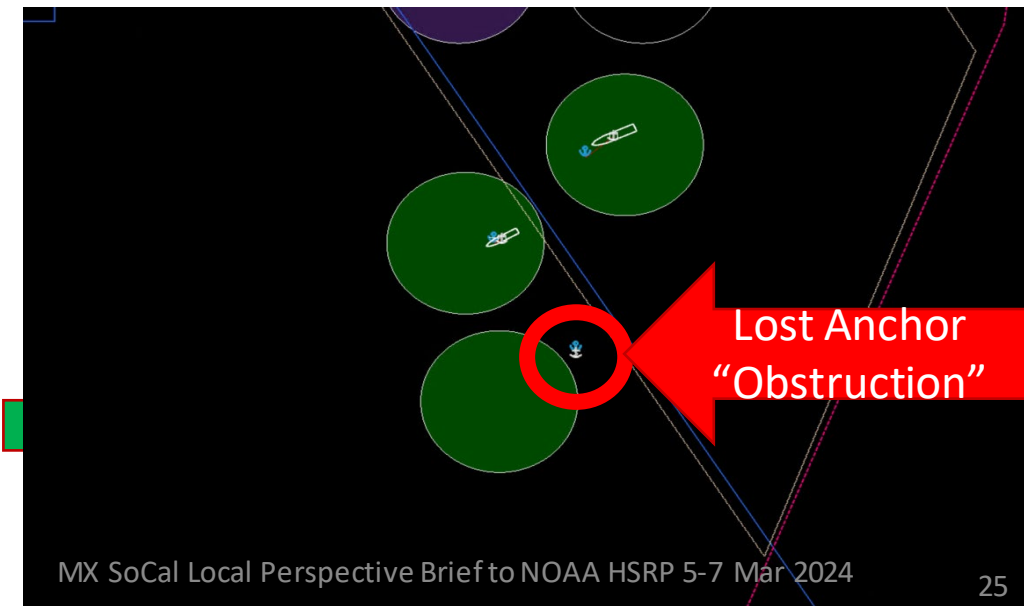
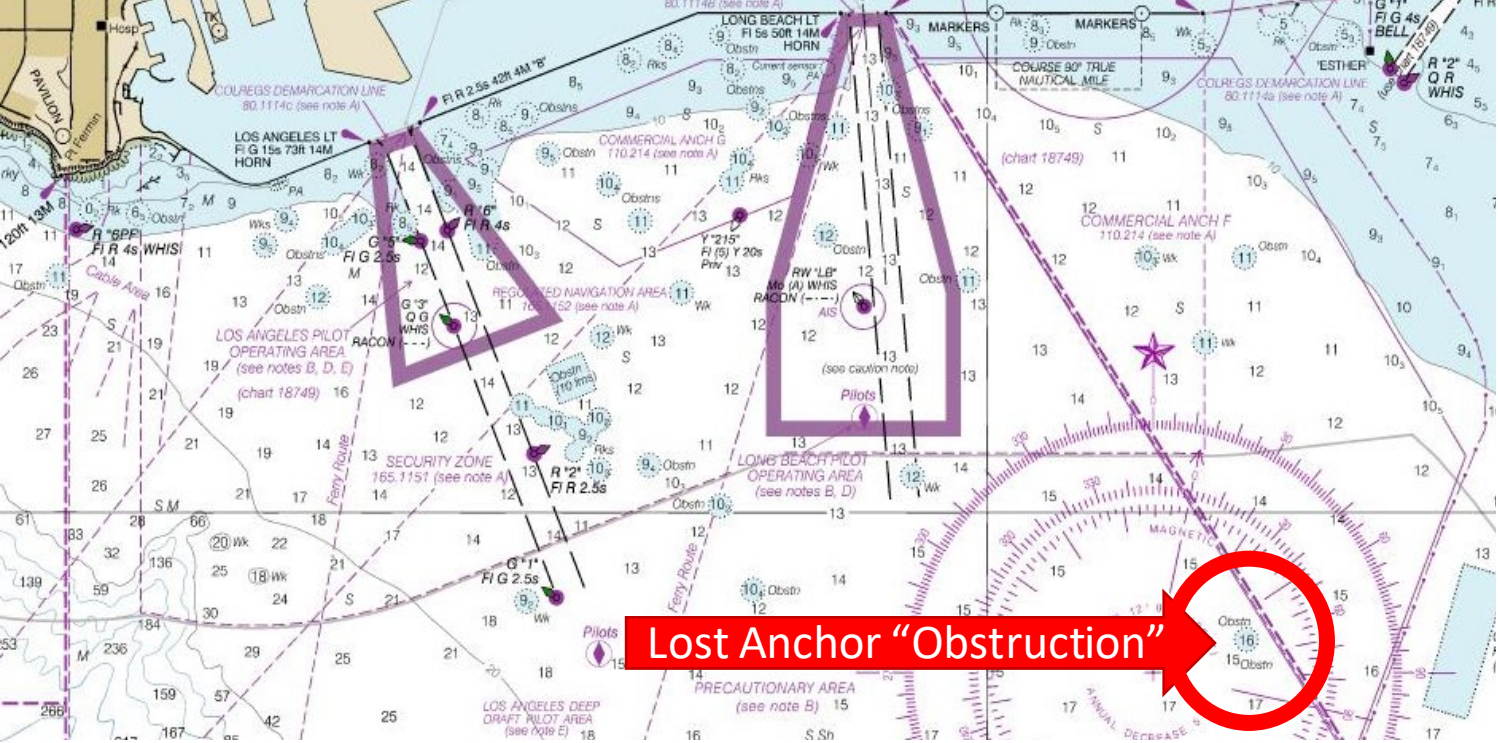
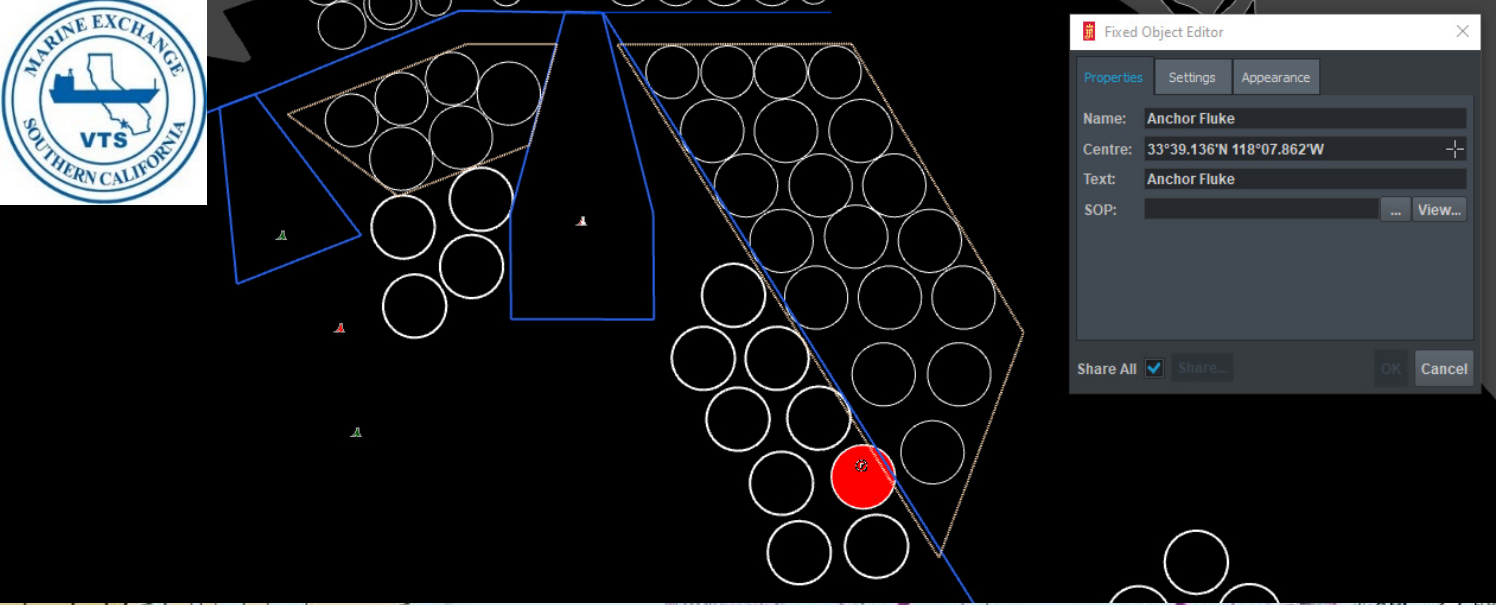
Partnerships & Technology

Ship lost its anchor in one of our best, deepest & most useful anchorages (red circle).

LAPP had appropriate underwater ROV & expertise to find anchor. Provided Lat/Long & Depth over anchor to NOAA.

NOAA put anchor on chart "Obstruction"

MX, with concurrence of the Coast Guard, moved anchorage so lost anchor is between anchorages.



Success due to working off common charts, depth, tide, and weather data

ORACLE

ORACLE LOS ANGELES
SAIL GRAND PRIX



LOS ANGELES

SAIL GRAND PRIX

PORT OF LOS ANGELES
UNITED STATES
JULY 22/23 2023

BUY TICKETS [SAILGP.COM/LOSANGELES](https://sailgp.com/losangeles)



ROLEX MUBADALA ORACLE near



International Event Planning

Sail GP Event moves around the world

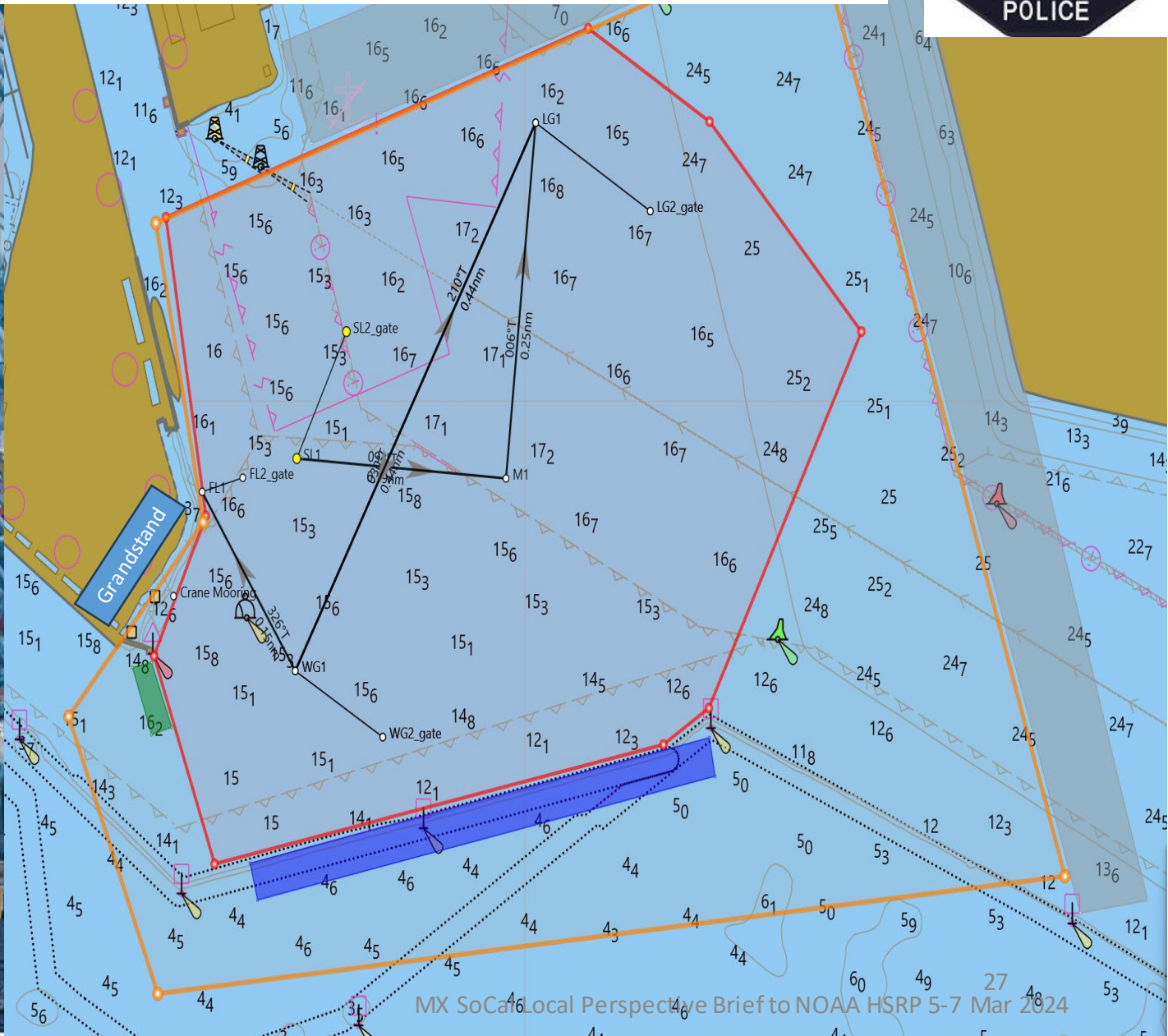
In USA: New York, Chicago, and San Francisco

10 Catamarans racing at speeds to 50 knots

1st time in Los Angeles Harbor July 2023

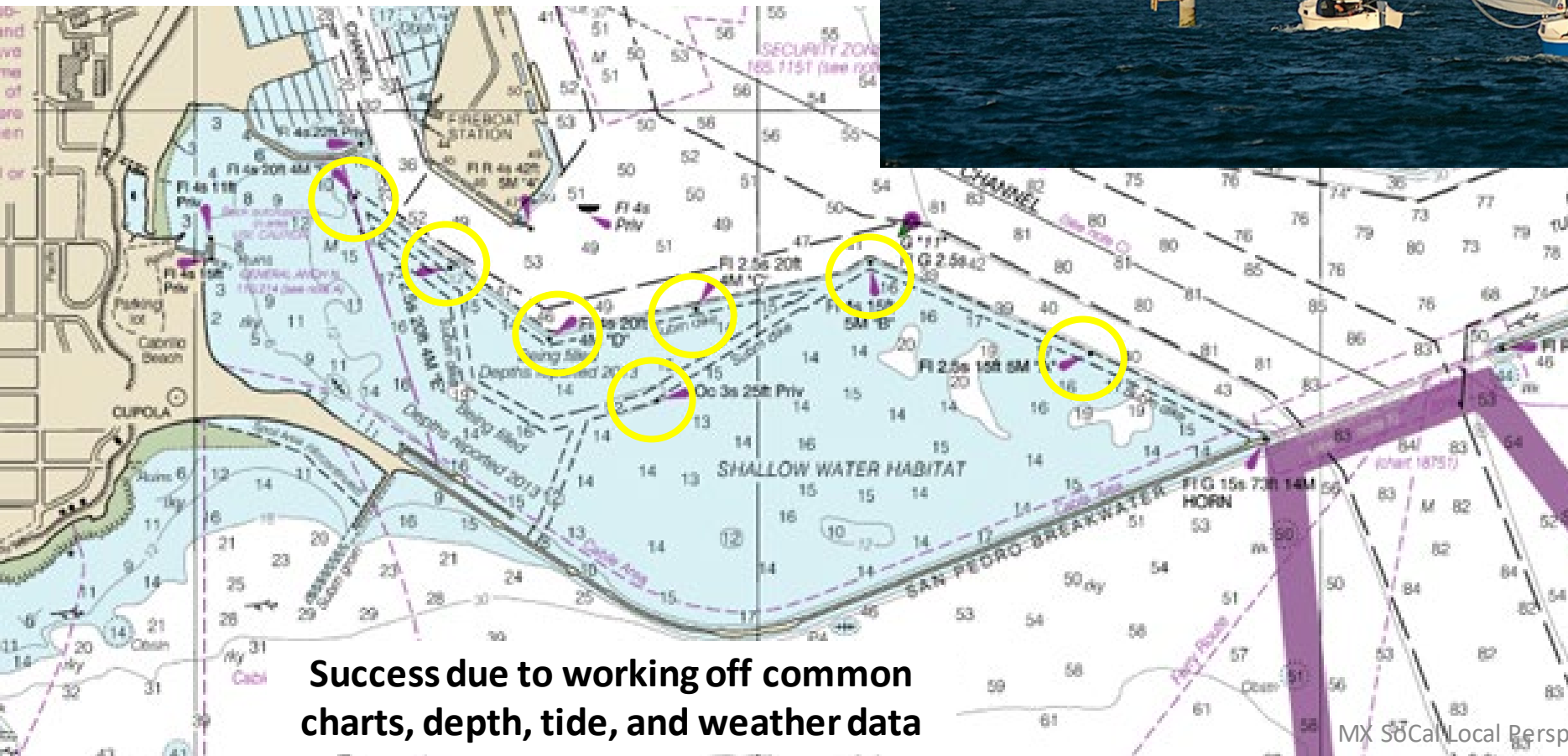


Challenges: Cutting Edge of Sailing Close to shore to make it a spectator sport



Challenge: Race Course Hazards...

To Sail GP and local
boating & racing



Success due to working off common
charts, depth, tide, and weather data

Day boards!

Sail GP moved their
course due in part due
to these "Aids to
Navigation"

*Note Damage from
vessel strikes*



More Challenges:

- High Speed racing in a busy commercial waterway
- Event Control Bifurcated: Los Angeles and London

Actions Taken:

- Essential tug and barge traffic adjusted out of normal channel
- Slightly altered large ship traffic schedules

Success due to working off common charts, depth, tide, and weather data



Mid-Air Collision with loss of 3 lives

Super Decathlon and Beechcraft Bonanza

5 February 2016

Coordinated Search and Recovery

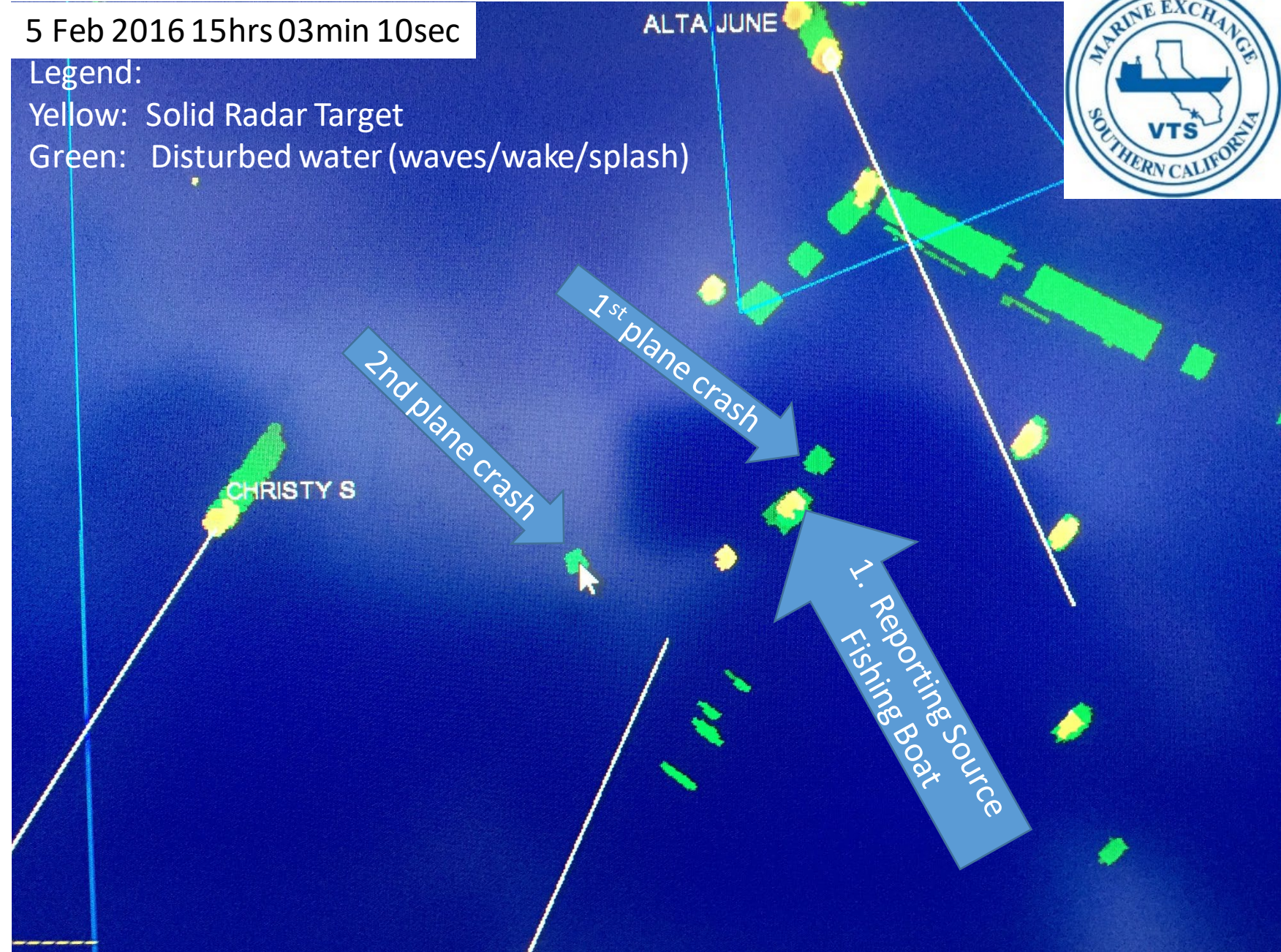
1. "Reporting Source Fishing Boat" saw 1st plane hit the water.
2. Noone saw 2nd plane.
3. Later determined there was a 2nd plane.
4. ROVs could not find 2nd plane due to large search area.
5. VTS did replay. VTS radar showed splash of 1st plane.
6. VTS found similar splash & determined LAT/LONG
7. "Look here!" ROVs found 2nd plane.

5 Feb 2016 15hrs 03min 10sec

Legend:

Yellow: Solid Radar Target

Green: Disturbed water (waves/wake/splash)

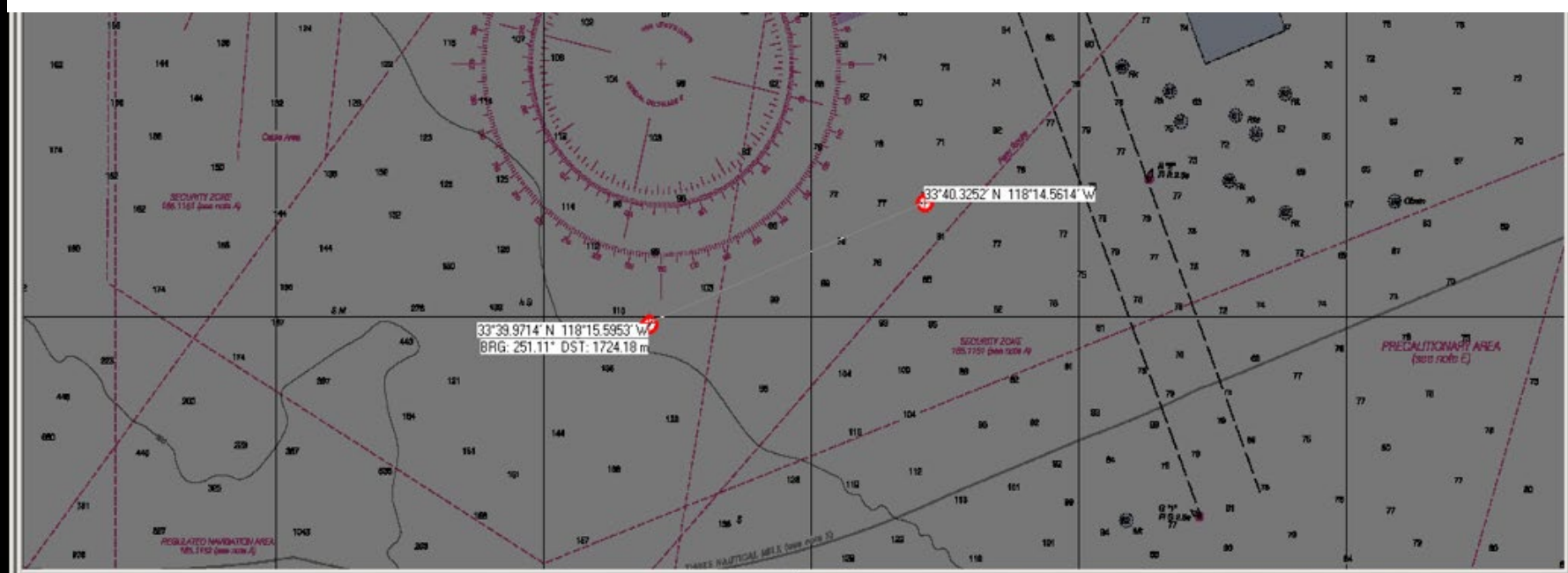




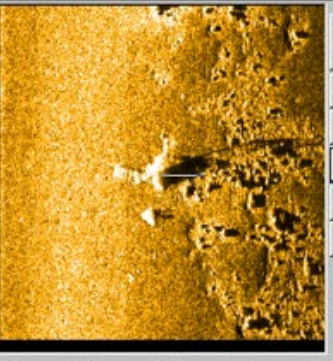
Mid-Air Collision with loss of 3 lives (cont.)

Locations and Images of the 2 planes by LAPP ROV

Success due to working off common charts, depth, tide, and weather data



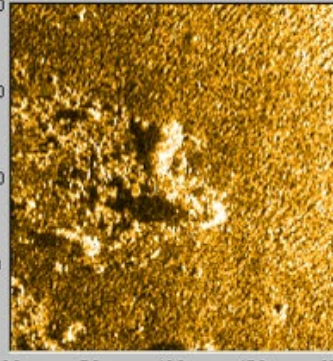
2/9/2016 20:10:57 Starboard, Range: 34.28m, Zoom:1



Lat: 33:39.9647 N
Lon: 118:15.5908 W

Length: 5.4 m
Width: 3.7 m
Height1: 1.4 m
Height2:
Outline
Name: Citabria

2/6/2016 11:25:44 Port, Range: 35.21m, Zoom:1



Lat: 33:40.3240 N
Lon: 118:14.5542 W

Length: 6.3 m
Width: 2.3 m
Height1: 1.2 m
Height2:
Outline
Name: Beech 35 Bon

Ping #:	Range:	m	Latitude:	N/S	Fish Heading:	deg	Pressure:	psia	TowFish Altitude (meters)
Time:	Speed:	knots	Longitude:	EW	Pitch:	deg	Temp:	deg	
Date:	Depth:	m	Course:	deg	Roll:	deg	Errors:		

Cursor Lat/Lon:----> Lat: 33:39.9714 N Lon: 118:15.5953 W

Port Security Counter Mine Operations with U.S. Navy

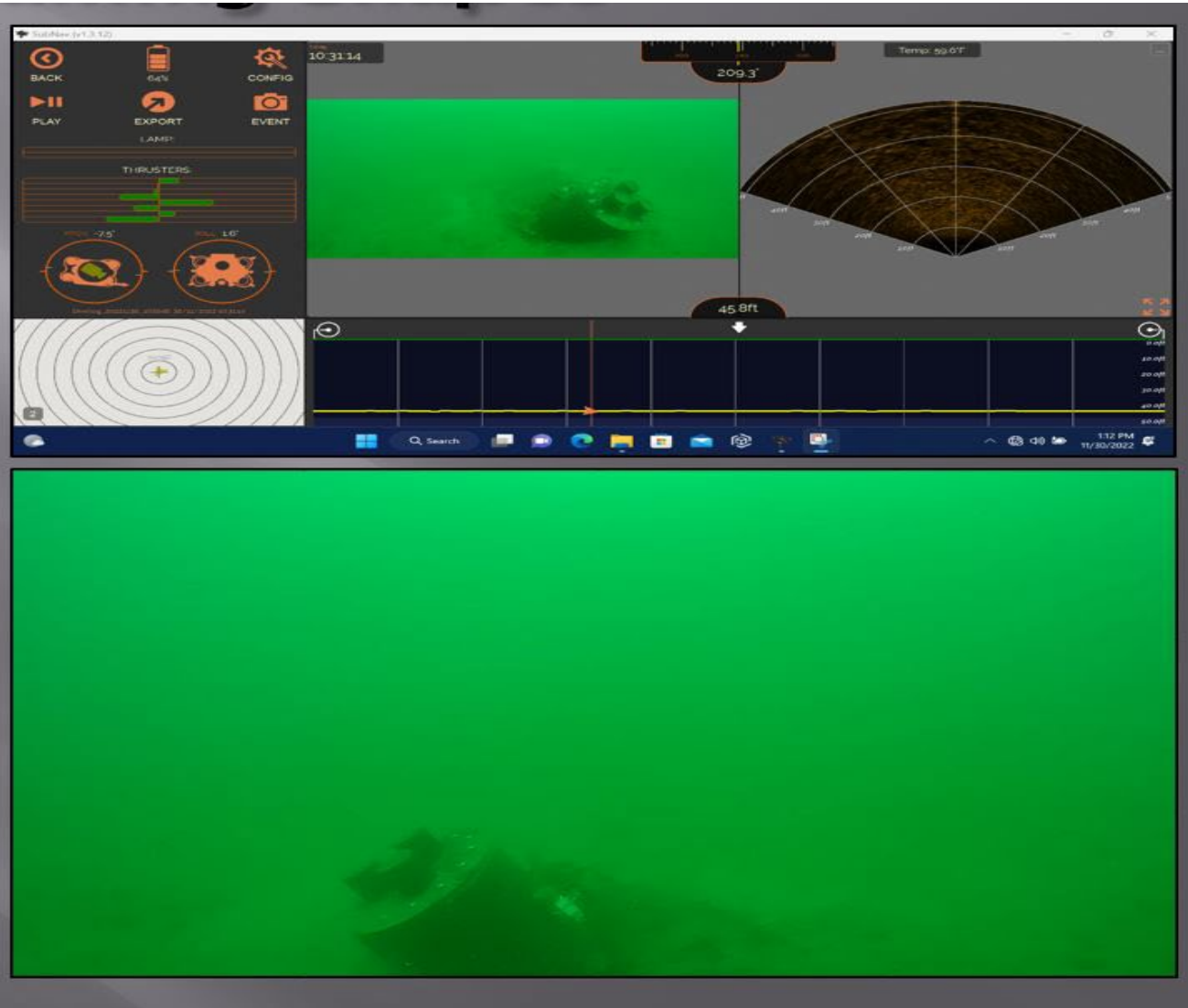
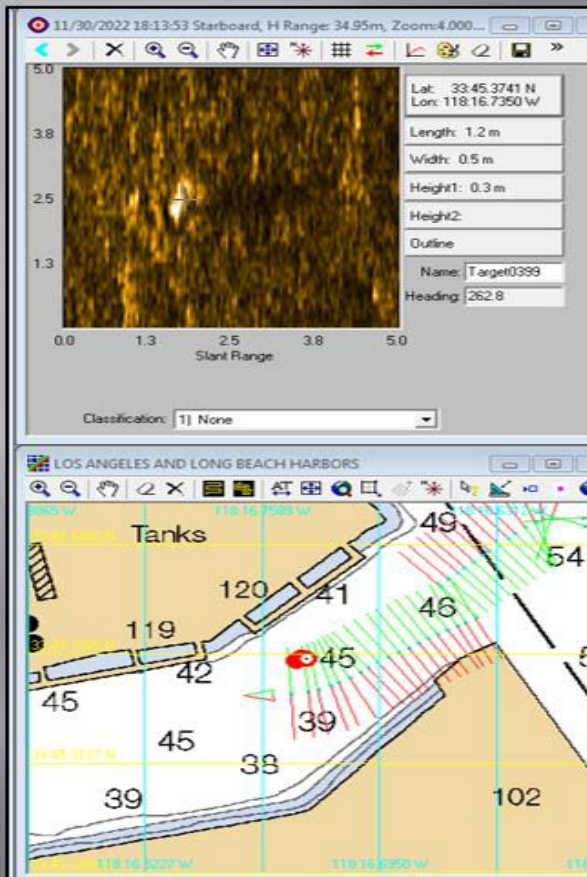


Accurate Charts with objects on bottom help USN and LAPP determine “what’s new?”

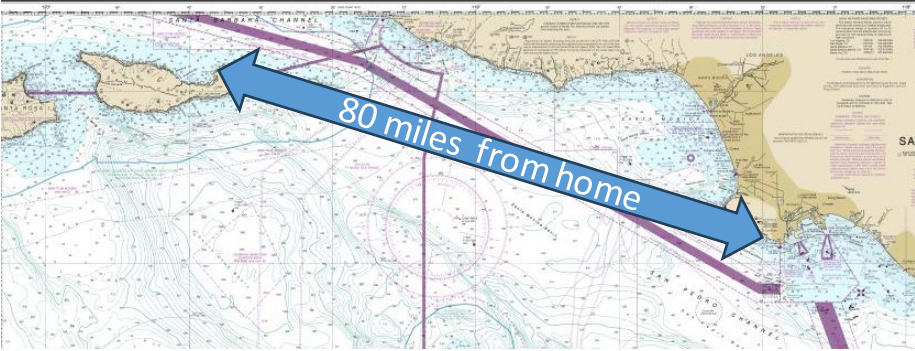
Which could be a mine.

Saves time checking what’s old.

Success due to working off common charts, depth, tide, and weather data



Dive Boat "CONCEPTION" Fire, Sinking & Loss of 34 lives 2 Sep 2019



Multiple Partners & Unfamiliar waters
LAPP ROV mapped wreck location & debris field
**Success due to working off common charts,
depth, tide, and weather data**

Survey Waypoints

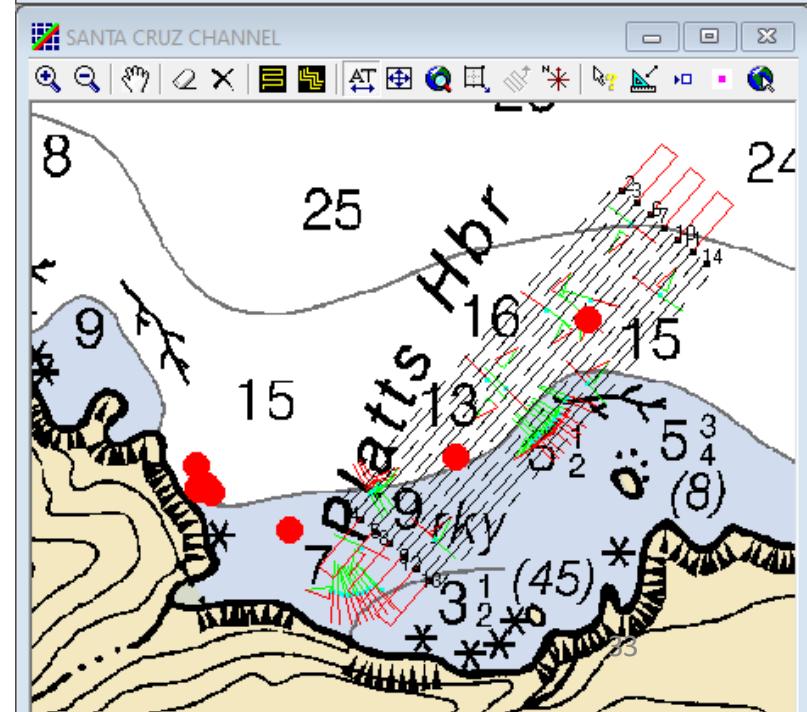
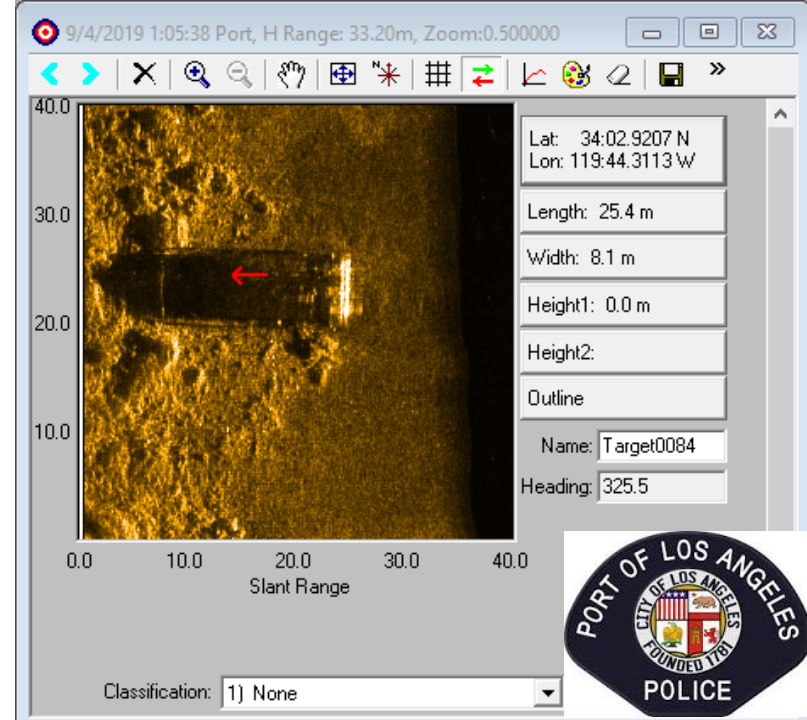
Klein GPS Santa Cruz 09-04a – Survey Area
2
Survey Grid

Survey Parameters

Line length: 680 meters
Line spacing: 30 meters
Number of lines: 7
First line heading: 41.00 deg (TRUE)
Maximum layback: 100 meters
Cross track error: 15 meters
Survey origin: 34:02.9043 N 119:44.1551 W

Note: Any changes to the waypoint coordinates
are ignored for Survey Grids

Waypoint number	Line number	Latitude	Longitude
1	1	34:02.9043 N	119:44.1551 W
2	1	34:03.1812 N	119:43.8646 W
3	2	34:03.1705 N	119:43.8498 W
4	2	34:02.8936 N	119:44.1403 W
5	3	34:02.8830 N	119:44.1256 W
6	3	34:03.1599 N	119:43.8350 W
7	4	34:03.1493 N	119:43.8203 W
8	4	34:02.8724 N	119:44.1108 W
9	5	34:02.8618 N	119:44.0961 W
10	5	34:03.1387 N	119:43.8055 W
11	6	34:03.1281 N	119:43.7908 W
12	6	34:02.8512 N	119:44.0813 W
13	7	34:02.8405 N	119:44.0666 W
14	7	34:03.1174 N	119:43.7760 W



Challenges:

Huge ships... getting bigger

Deep draft tankers... up to 69'

Narrow channels

Tight schedules

Bad weather

7x24x365 MX, VTS, Pilots, Tugs, Ports & Port Partners work together to ensure safe, secure, efficient, reliable, and environmentally sound vessel movement



Deepest Draft: 69' entering Long Beach

VTS Record of success:
More than 800,000 safe transits
during 29 years of operations.

MX SoCal Local
Perspective Brief to
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5-7 Mar 2024

Saturday morning 26 Sep 2020. *Rush hour.*

Beautiful Sunrise on a morning with low fog, looking East from our building.



Hopefully, this was helpful!

Questions, comments & discussion?



We enable close, efficient & safe spacing



We enable safe ship movement when other ports would need to shut down.

MX mission: 7 x 24 x 365 provide traffic management, communications, and maritime information services to promote a safe, secure, efficient, reliable and environmentally sound marine transportation system.

MX: There when you need us most... emergencies (fires, medical, rescue), fog and bad weather, natural or man-made disasters, fog, etc.

Providing Maritime Peace of Mind since 1923

**24 Hour Vessel Traffic Center
Watch Floor: 310-832-6411
www.mxsocial.org
info@mxsocial.org
VHF-FM Channel 14**

Point of Contact:
CAPT Kip Louttit, Executive Director
Work: 310-519-3127 Cell: 310-897-1714 klouttit@mxsocial.org

End