

Offshore Essentials

Skills for open-water trawler travel

TrawlerFest®

BOAT SHOW – EDUCATIONAL EXPERIENCE – RENDEZVOUS

PassageMaker Magazine 2020

Trawler Fest LIVE Online Summit

Presented by Jeff Merrill

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About this presentation...

- *Get familiar with your trawler before you leave the dock. Your best strategy and my strongest recommendation – **learn it all!**
- *What to be aware of in the **Pilothouse** (Nav/Com) and **Engine Room** (Machinery)

HANDOUTS BINDER – Let's take a look

This PowerPoint (PDF) and all handouts are available for your own private use. I will post on www.JMYS.com two weeks after class complete.

You can also sign up for the JMYS email newsletter if you are interested.

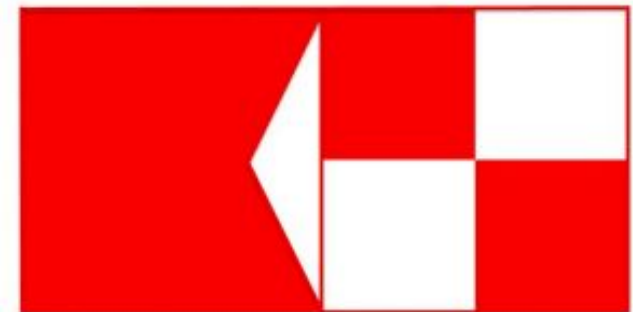
You (the Owner) need training

- Education...online, local colleges, professional schools – any suggestions from the class?
- Coastal Navigation
- Diesel Mechanics
- Weather basics
- US Power Squadron classes
- Chapman's/Annapolis Seamanship School
- Hiring a Captain to train with you
- Boater's University

Expert Instruction From The Brands You Trust.

Offshore Cruising: Preparing Craft & Crew

Preparation is key to successful cruising. Regardless of the size, make or model of your boat, understanding its critical systems and having a plan is crucial to keep your craft performing efficiently and safely. Join yacht broker, boatbuilder and TrawlerFest instructor Jeff Merrill in this exclusive online course designed to help you prepare yourself, your boat and your crew to get the most out of your offshore boating adventures.



Boaters University

YouTube videos

OFFSHORE TRAINING



YouTube

54:49

Your boat must be ready too!

- Learn RPM variations, speed and fuel burn
(Develop a **Performance Card Handout***)
- Understand operation of every system
- Do you have manuals for every component?
- Acquire the right tools, spare parts, etc.
- Routine maintenance: filters, fluids, impellers, etc.

Owner Hands-on Knowledge

Hand Out*

For insurance coverage you need to be familiar with the items on the attached hand out, please review...



Learning more about your boat

- USCG Safety Gear – have requirements?
- USCG Auxiliary inspection?
- Through hulls and bilges
- Clean fuel. Fuel Valves, Tanks and Hoses
- How to “Stop” – anchor and windlass
- Make sure you AND your trawler are ready to go BEFORE you take off...

Tools

Keep the right tool near the service item



AllTimeTools.Com



Spare Parts and Service Manuals

(When you get a spare replace the existing item and keep the item that was in service as spare)



Organize your manuals

- Keep them in organized bins
- Go online to get electronic PDF versions
- Keep a list of vendors with contact information – phone and email
- Manuals can help you stock spare parts and learn service intervals

Know before you Go...

- Simulate a “Day in the Life”
- Spend time aboard at the dock (24 hours)
- Get familiar with the engine room
- Anchor out overnight (pick a local spot)
- Learn where everything is and how it works, sounds, and how to service it
- Hire a captain to gain their insights
- The best thing you can do is use your boat locally, before you take off on a big trip

USCG Requirements - example

- ***Handout - USCG Nordhavn 50**
Good practice to identify all of the safety gear you have on board and note the location. This is a helpful quick reference document to have laminated and keep in the pilothouse.

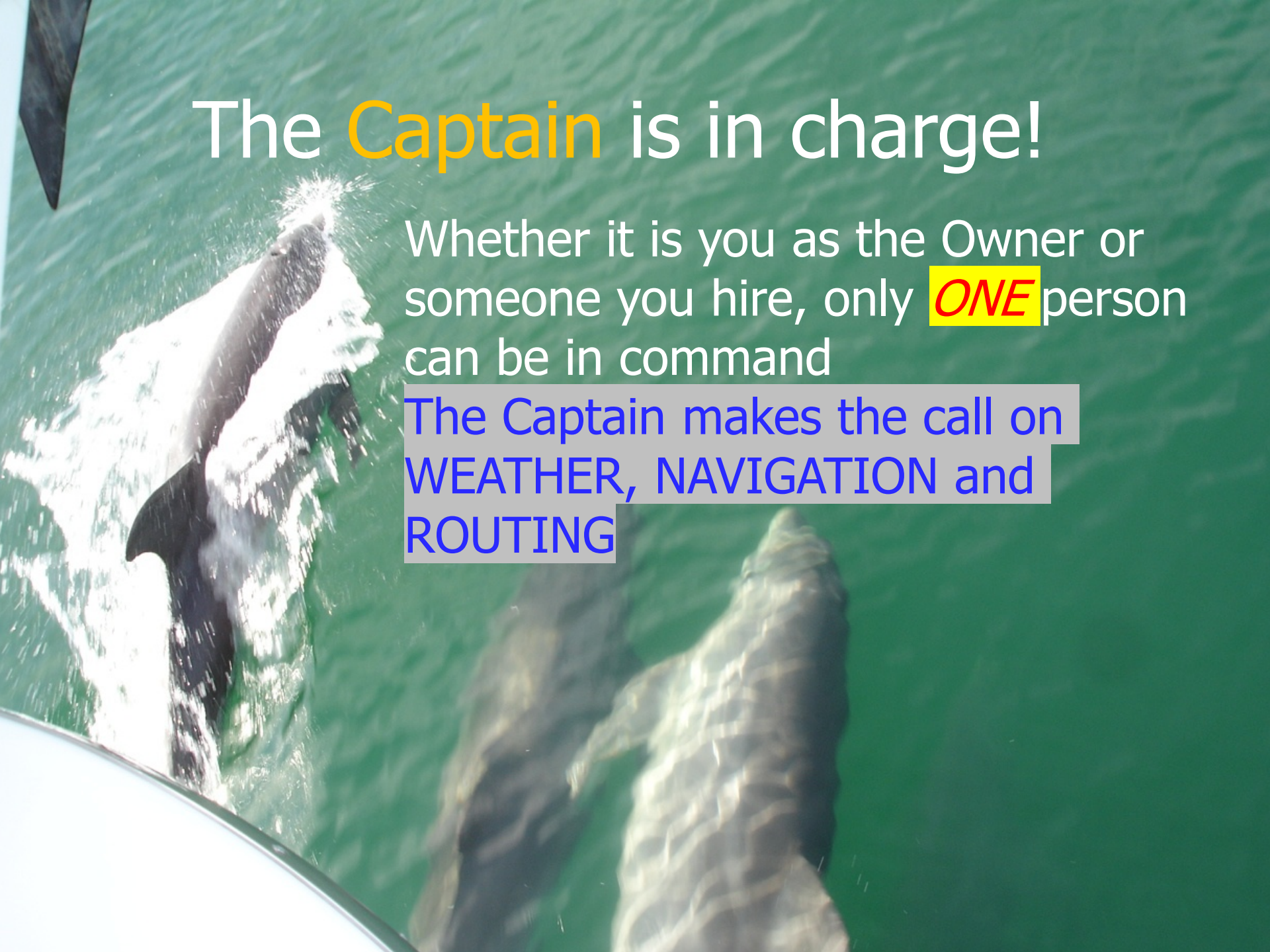
Lifejackets – comfortable – wear them, don't forget kids and pets



The Captain is in charge!

Whether it is you as the Owner or someone you hire, only **ONE** person can be in command

The Captain makes the call on
WEATHER, NAVIGATION and
ROUTING



Weather Factors before you depart...

Go/No Go parameters

- *Sea state - Swell – 6' and smaller
- *Period between Swells – 8 seconds or longer
- *Winds – below Gale force (40 knots)
- *Barometer – dropping usually signifies stormy weather

Weather Forecasts Underway:

- *Satellite Radio – XM/Sirius forecast service
- *VHF – channel 3 and 4
- *Professional Weather Routers – **Chris Parker**
- *Internet, if you have it aboard

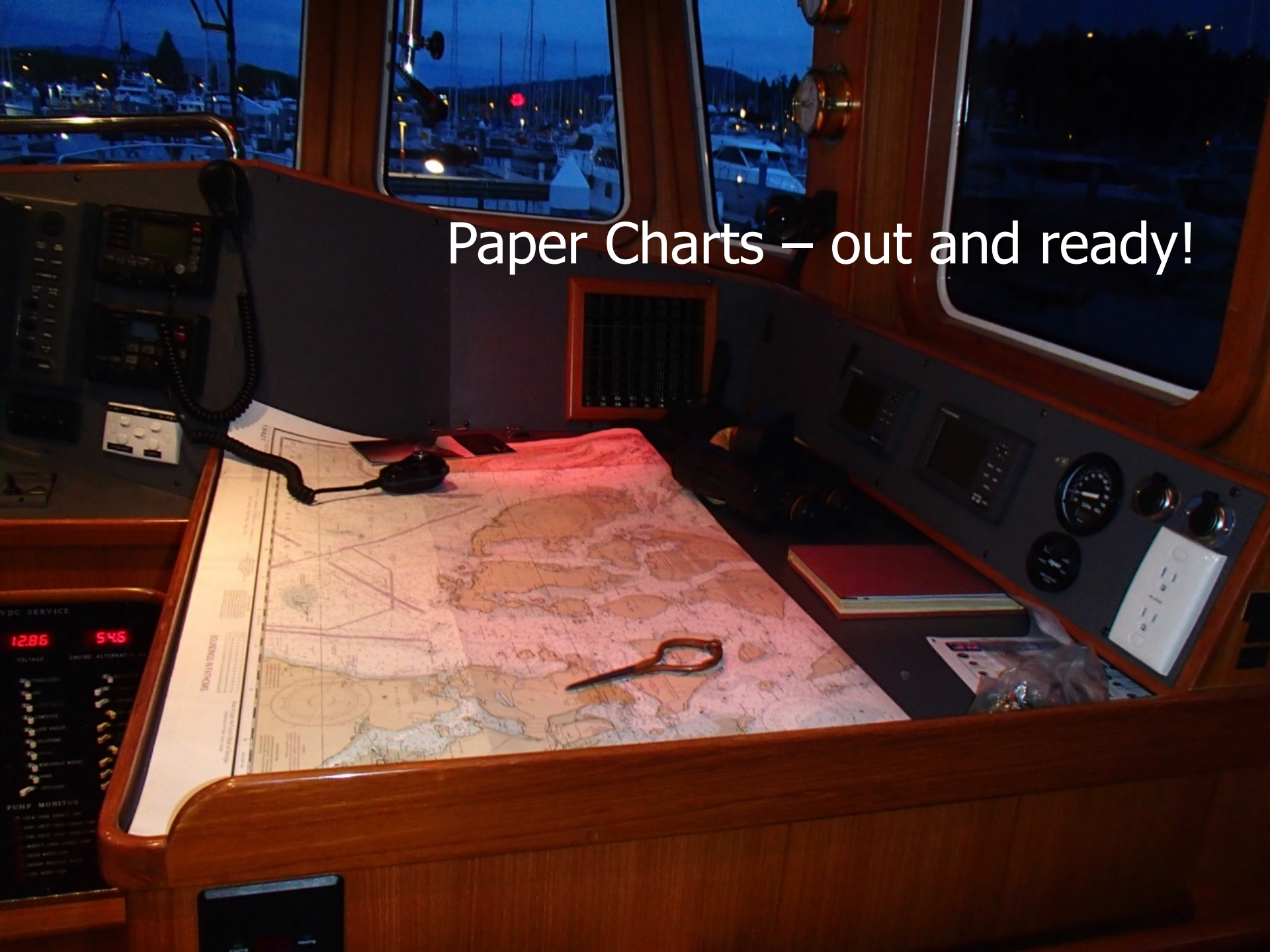
Rough Weather Suggestions

- Anticipate and prepare, sometimes you have to go through it...it won't last forever
- Make sandwiches in advance
- Secure all moving parts
- **Change course and/or reduce speed** to make it a more comfortable ride

Basic Navigation – Paper Charts

- Know how to read a paper chart
- Continually cross reference with electronic charts
- Tools – Dividers and Parallels
- Depth – safe waters, shoals, etc.
- Shipping Lanes
- Obstructions, wrecks
- Buoys and aids to navigation
- Organize charts in the order you will use them

Paper Charts – out and ready!



Ships Log – buy or make your own

THE
SHIP'S
LOG™

Cruising Log Handout*

Log of "Autumn Wind" Hull 6219

Date: 30 MAY 12 From: ANA CONUS To: Page # 12

Pilotage:

| Time | Course | R.P.M. | Knots | Wind speed/dir | Latitude/longitude | Visibility/seas | Other |
|-------|----------------|--------|-------|----------------|----------------------|-----------------|---------------|
| 5:10 | | 1450 | 11.2 | 9.7K | 48°17'50 / 122°50'95 | CLDY | LV. DOCK |
| 8:00 | 248 | 1450 | 8.5 | 5.4 | 48 26 39 / 123 07 79 | 1.5 CLDY | DRY DOCK |
| 10:30 | SAFETY MEETING | | | | 48 19 96 / | | CAP. KIRK |
| 12:00 | 265 | 1450 | 7.2 | 2K | 48 19 96 / 123 52.67 | NUBL | 57 mi - JEFF. |
| 4:00 | 260 | 1450 | 8.4 | 4K | 48 23.96 / 124.16.04 | 4 | 72.5 |
| 6:00 | 250 | 1450 | 9.2 | 8.4 | 48 26 14 / 124 40.09 | | 89 |
| 8:00 | 182 | 1450 | 6.6 | 6.2 | 48 12 99 / 124 41 92 | 3 calm | |
| 10:00 | 174 | 1450 | 6.4 | 5 | 48 00 96 / 124 46 91 | 4 calm | |
| 12:00 | 160 | 1450 | 7.0 | 21 | 47 47 89 / 124 39 89 | WCLDY | 131 NM |
| 00 | 136 | 1450 | 7.4 | 15 | 47 33 76 / 129 26 26 | NIGHT | 145 / 94 gal |
| | | | | | / | | |
| | | | | | / | | |

Notes:

Date: _____ Destination: _____
Skipper: _____ Time of Departure: _____
Port of Departure: _____ Planned Port of Arrival: _____
Estimated Time of Arrival: _____ Actual Time of Arrival: _____
Engine/Checklist: _____ Gear/Checklist: _____
Weather Conditions: _____
Barometer: _____ Wave Height: _____ Wind: _____
Narrative: _____

Places/Events to Remember: _____
What and Where We Ate: _____
Where We Shopped and What We Bought: _____
Who We Met: _____

LOG BOOK
& JOURNAL



Ships Log

- Record your position, departure and arrival plus machinery hours of operation
- Hourly - on the hour - recordings
- Typical details – lat/long, speed, RPM, heading, miles offshore, distance to waypoint, wind and sea conditions

Watch Standing Essentials

- **Keep water under the keel -don't hit anything!**
- Compass Heading: correct direction
- Navigation: position and intended course
- Radar: Awareness of targets, boats and land

Electrical Panel – understand each breaker



Crossing Situations – Part One

- Identify Targets in advance
(Head On and Overtaking)
- Hail on VHF 16 to discuss passing
- Pass Port to Port [or] change via VHF

Crossing Situations – Part Two

- Make your intentions clear – **EXAGGERATE** your heading
- Understand the rules for **"Give Way"** (You alter) vs. **Stand On"** (Maintain course and speed)
- Slow or change course to avoid a collision. **Pass Behind!** Crossing in front is scary...

Try to keep one mile apart



Navigation Electronics Instruments to know

- Autopilot modes: Auto, Standby and Nav
- Radar – Targets, Rings, Distance, CPA
- VHF – 16, how to talk and switch channels
- Chart Plotter – Waypoints, Routes
- GPS – Latitude/Longitude
- Depth Sounder
- AIS – ship tracking
- Features:
- Chart and Radar overlay
- How to Dim
- How to Mute (Alarms)
- Waypoints / Route

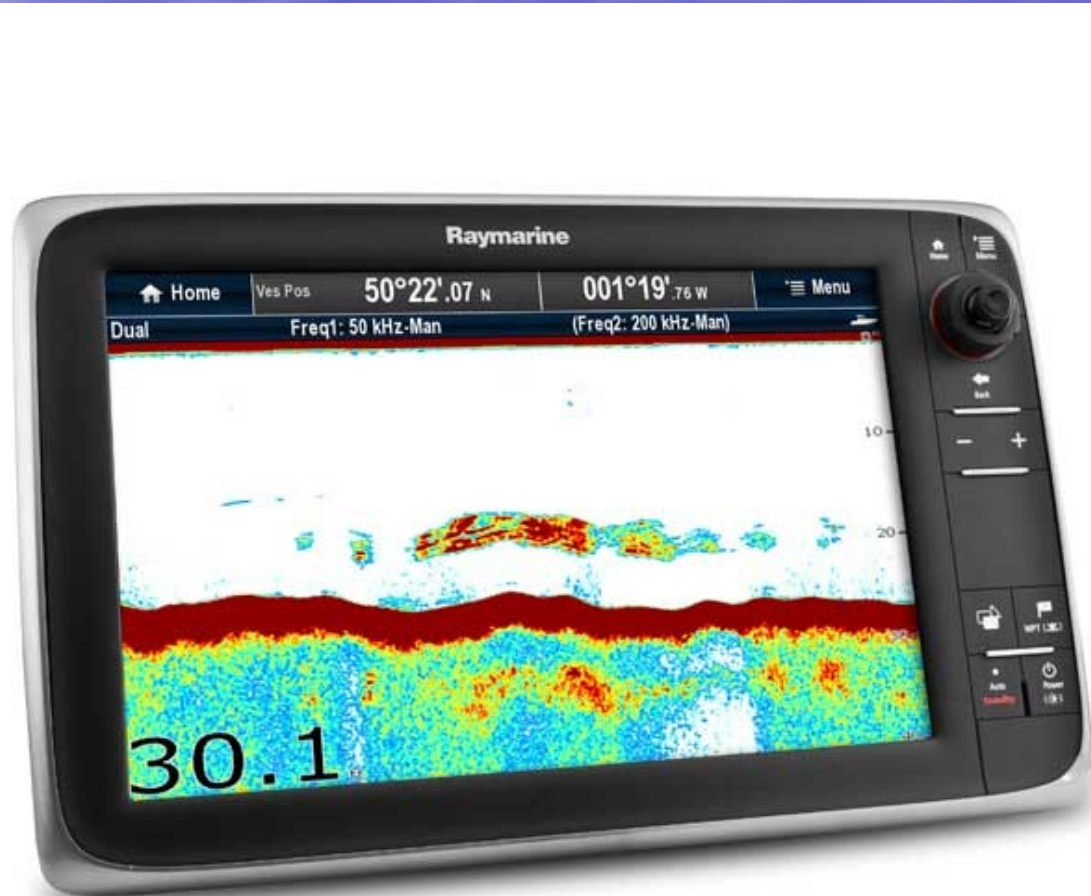
VHF (Very High Frequency)

Primary source for ship to ship communications.



Depth Sounder

Fish Finder shows bottom contours



Depth

- If you don't have water under the keel...
- What does your boat draw?
- Set transducer to measure from keel
- Someday you will run aground (Tow Boat US/ Vessel Assist). Back off, wait for tides

GPS – Global Positioning System

Latitude and Longitude



AIS (Automatic Identification System)

- Integrates a VHF transceiver with GPS coordinates and navigation sensors to “exchange” information between ships
- Details like ships name, length, speed, heading, destination – and **time to closest possible approach.**
- Very helpful, don't forget Radar blips that are also targets without AIS



AIS target (Variable range, 6 - 12 miles average.)

The image shows a portion of an AIS (Automatic Identification System) radar display. It features concentric green circles representing range rings. A prominent red dashed line indicates a track or bearing. In the upper right, a data box displays coordinates $48^{\circ} 16'$ and $123^{\circ} 15'$, along with the heading 'Hdg 2'. A blue triangle with a red arrow points towards the right side of the display. Various small red and black icons are scattered across the screen, representing different vessels or targets. A green crosshair is visible near the center of the display.

AIS details

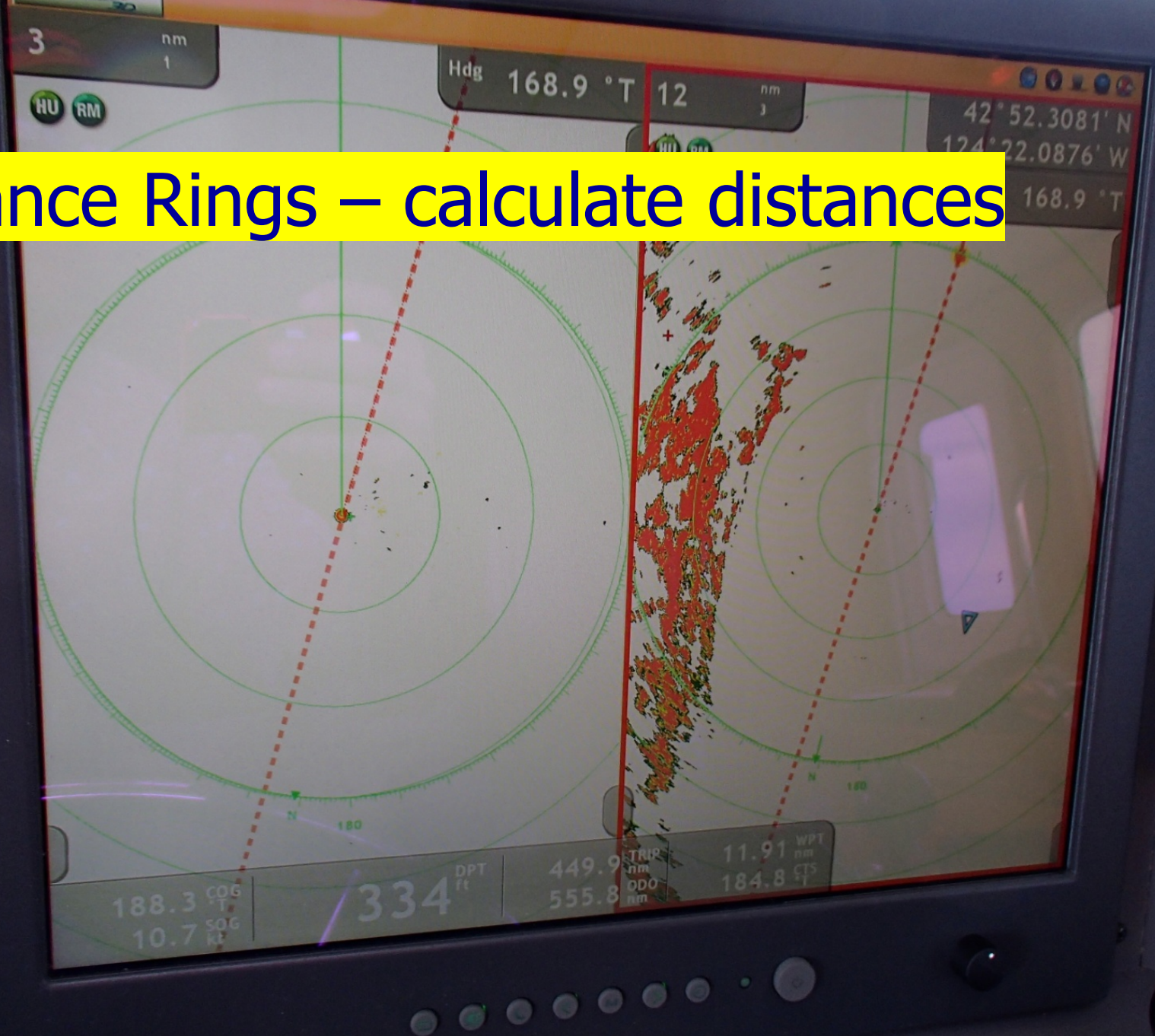


RADAR

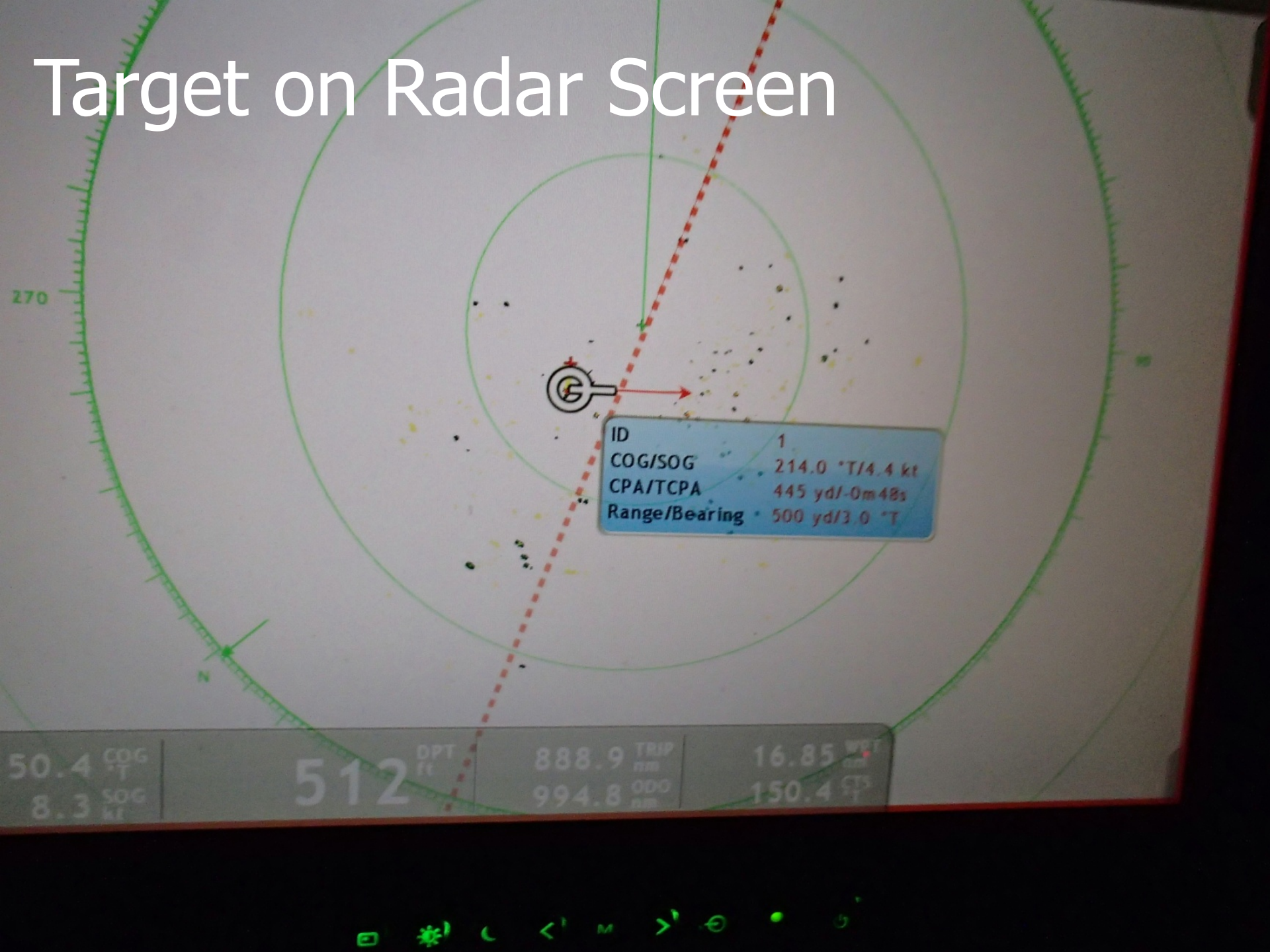


- "Charts are legend, GPS is theory, Radar is TRUTH!" Author unknown
- Radar rings help with distance (Zoom in and Zoom out frequently)
- Targets – **ARPA** – Auto Radar Plotting Aids

Distance Rings – calculate distances

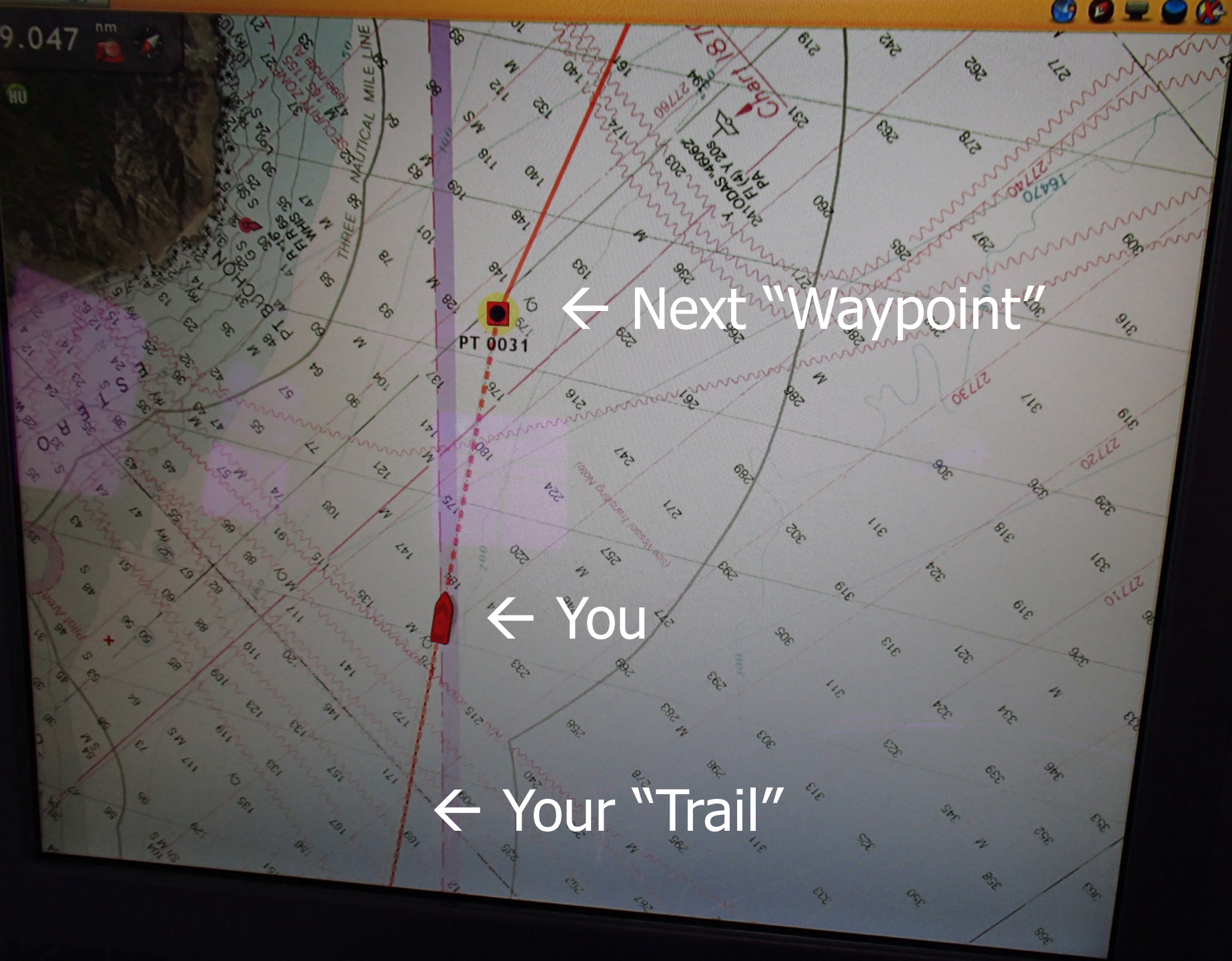


Target on Radar Screen



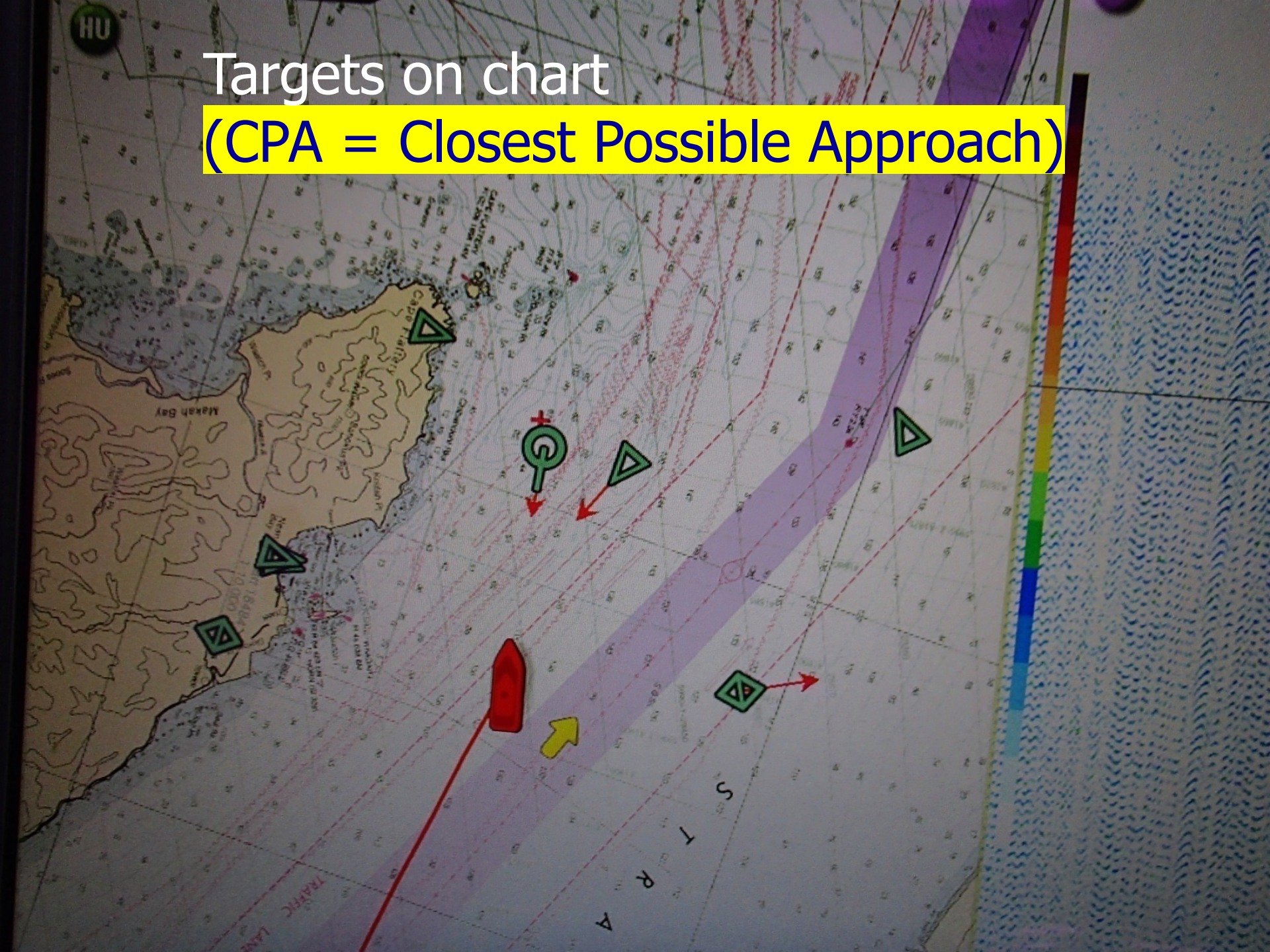
Plotting: (Paper and Electronic Charts)

- Hourly pencil Lat/Long on Paper Chart
- Paper Charts are a reliable back up if you lose electronic navigation plotting
- **Electronic charts are not fool proof...**



Targets on chart

(CPA = Closest Possible Approach)



Autopilot



Autopilot settings

- “Hands Free” much easier than steering
- “A” Autopilot – Digital compass course
- “N” Navigate – Waypoint on Route
- “S” Standby – Hand steer

What's Up? Electronic Navigation

- Radar and Chart can be **Course Up**, **Heading Up** or **North Up**
- If your boat is heading North, it's easy
- When heading South, it's confusing
- Know how to change the screen orientation so that it is logical to you



Plotter and Radar – Heading Up



!

There's a saying in the cruising community:

*"All cruising plans should
be etched in the sand at
low tide."*

Keep an eye out for obstacles...and
a camera nearby!



Pre-Departure Check List

- **Handout* - Start Up**
- Rain-X on windows
- Fresh Impellers, Clean Filters
- Clean Fuel and confirm Valves correct
- Clean out intake Strainers
- Test run all equipment at the dock



The Captain plans the route

Handout* Ready for Sea

- *Departure time – Daylight, Tides
- *Distance to travel, speed average (Arrival ETA?)
- *Anticipated Sea and Weather conditions
- *File a Float Plan let people know your itinerary
- *Keep looking back, you may need to retreat...

Common Questions:

- *How far offshore will you travel?

(Close? Far? Sea state? Wind? Currents?)

100 Fathom line = crab/lobster pots.

- *Avoid shipping lanes and high traffic areas?

- *Getting sleepy on watch – what do you do?

- *What if it is too rough to continue?



What do you record in the log?

Underway Log Handout*

Heading, course – following the route?

Latitude and Longitude position

Trip Log – fill out details

Speed of your boat – RPM, Knots

Fuel burn/consumption

Weather – Wind: speed/direction,

Sea state: – wave height and period

Barometer

Traffic, obstacles on the water, concerns

Battery levels – voltage good?

Changing Watch

Watch Schedule* hand out

Identify all Ships Traffic (coming and going)
Confirm Course, Route and next Waypoint
Any observations? Record in the log
Make sure new Skipper knows history and is ready before handing over the helm

15 minutes

Use an egg timer or other reminder to look outside of the boat.

Visually, with naked eye and binoculars, look outside by dividing your surroundings in **zones**. Search for traffic and objects

15 minutes is the time a fast moving ship can appear out of no where...

A photograph of a boat's cockpit. The dashboard is equipped with several analog gauges and digital displays. A steering wheel is visible in the center. To the right, there are two large monitors and a VHF radio. The background shows the boat's windows and a bright sky. The text is overlaid on the left side of the image.

Zoom in on Plotter Course and slowly Scroll to the next Waypoint – confirm you have a clear route with no obstructions

Radar – all clear?

Verify your gauges and settings – engine temp, oil pressure, battery voltage, etc.

Check VHF – on channel 16? Weather?

A man wearing a grey baseball cap and glasses is sitting in the driver's seat of a boat's cockpit. He is leaning back with his feet resting on the dashboard, which is cluttered with electronic equipment including two large chartplotters, a radar display, and various control panels. He has his right hand near his chin in a thoughtful pose. The cockpit has wood-paneled walls and several windows looking out onto a bright, sunny day on the water. The text 'Primary Watch Standing Duties' is overlaid on the bottom left of the image.

Primary Watch Standing Duties

- *Avoid collisions, "Look Out" for objects in the water
- *Keep a "Weather Eye" for changing conditions
- *Monitor VHF 16
- *If any trouble – change RPM – will get everyone's attention

While On Watch:

Monitor engine gauges – engine oil pressure, coolant temp, etc.

Monitor all electrical – battery voltage, amperage consumption

Radar: Targets - speed and heading

CPA “Closest Possible Approach” (time to intersect?)

Plotter: Waypoint – Are you on course?

Heading – Hand steer or Auto/Nav?

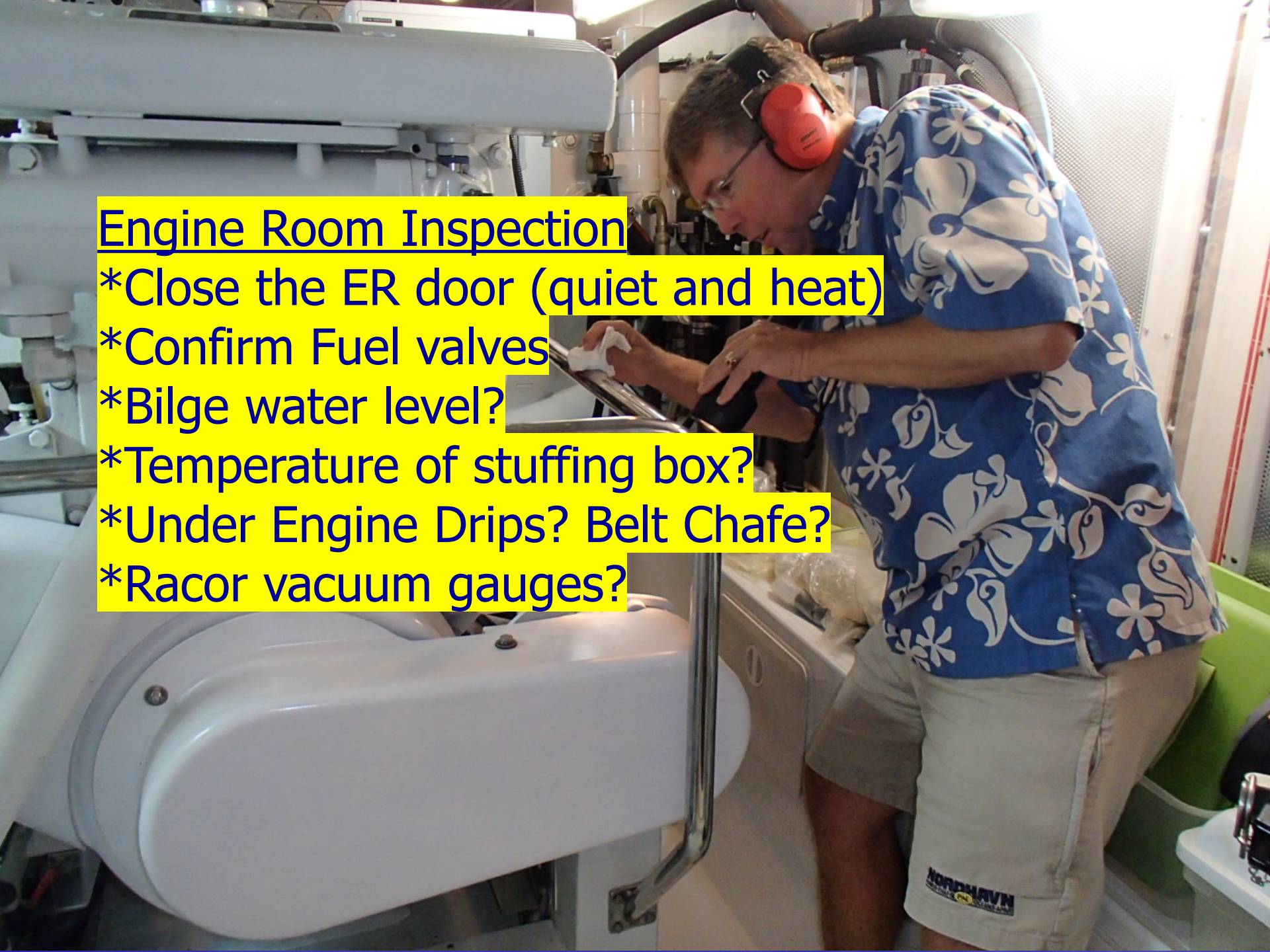
Listen to VHF radio, Update the Ship's Log

Engine Room Checks

- ***Handout: Hourly Temperature Watch List**
- Wear ear muffs
- Careful, it's hot & there are moving parts!
- No loose clothing or jewelry
- Does everything look right?
- Does everything smell right?
- Do you see any evidenced of chafe or drips?

Engine Room Inspection

- *Close the ER door (quiet and heat)
- *Confirm Fuel valves
- *Bilge water level?
- *Temperature of stuffing box?
- *Under Engine Drips? Belt Chafe?
- *Racor vacuum gauges?



Diesel (Fuel Management)

- Fuel supply –monitor tank levels underway
- Diesel fuel is “returned” - supply and return valves must “follow the flow circle”
- Understand valves – “To” and “From”

Label "To" and "From" on your manifolds



Ear Muffs – noise canceling

Essential for the engine room – at least two pair



Infrared Temperature Gun

Equipment to observe? Hold gun close, shoot same spot



“Night Ops” running after dark

- *Running lights – make sure they are all on
- *Interior lights: courtesy red, overhead red
- *Pilothouse command – dim and mute electronics
- *Wake the Captain if there is a concern
- *Stay awake, be extra vigilant – use VHF to communicate with other ships

Ready for Nighttime?

Don't forget spare bulbs for your Navigation running lights! (Better to upgrade to LED)



Night Watch:

- *Have a flashlight handy
- *Preserve your night vision (pupils– 30 minutes)
- *FLIR (forward looking infrared)
- *Search light (built in and hand held)



Night mode – dimmed down, red film, blue tape...



Garmin inReach

- *Two Way Texting
- *Subscription you can turn on/off.



Nov 11, 2020

2:53:30 AM

Good morning all! Start of day 3. So far flat seas, highest 3' swell. Strongest winds 6kt. Magical! 1000km to go!

Speed: 9.52 mph

Course: NW

Elevation: 21.00 ft.

Batt: Normal

Lat: N 15°16'46.7148"

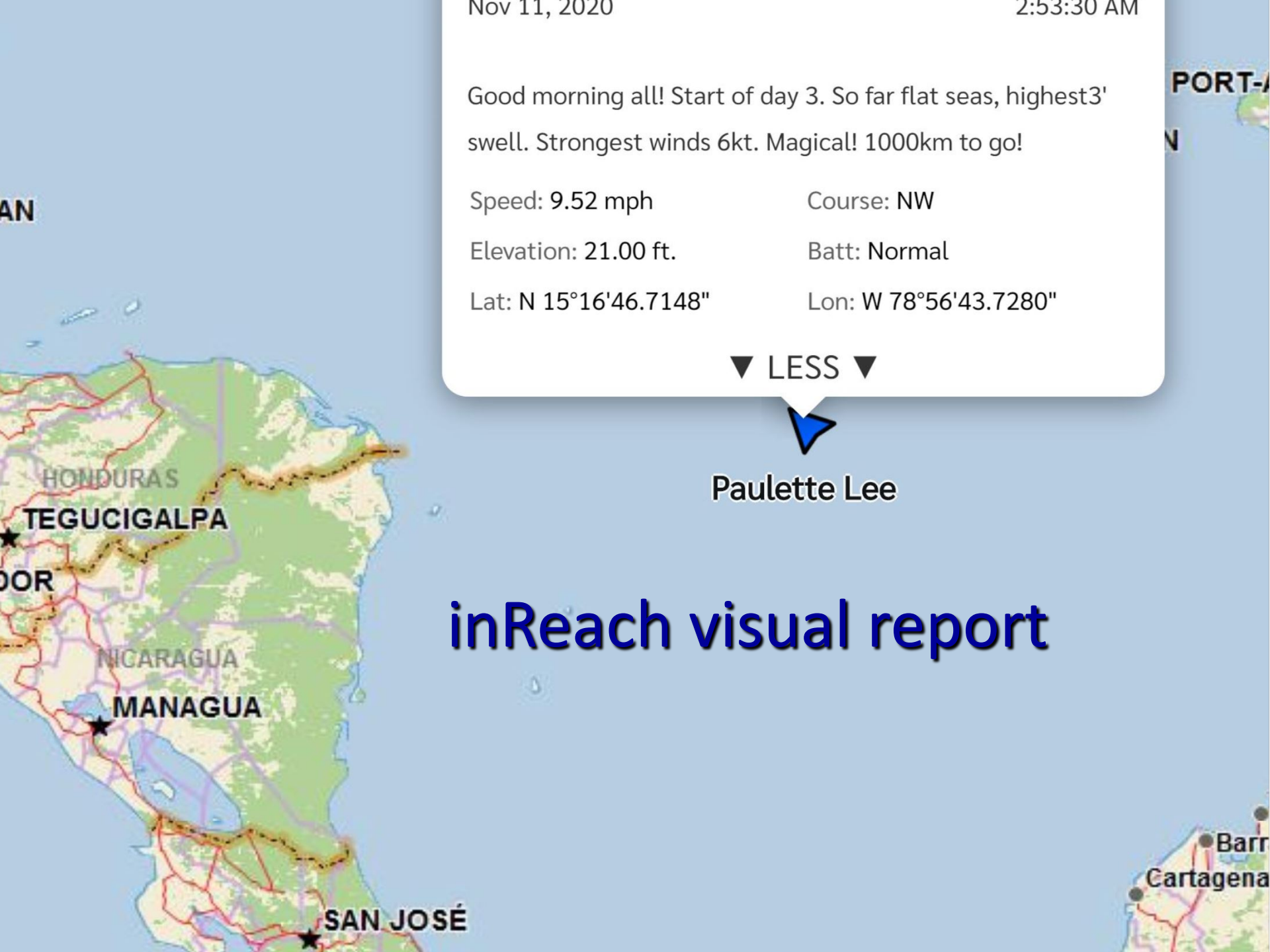
Lon: W 78°56'43.7280"

▼ LESS ▼



Paulette Lee

inReach visual report



A low-angle, perspective shot of the Golden Gate Bridge, showing the red-painted steel structure of the bridge deck and suspension towers against a clear blue sky. The bridge spans across a body of water, with a hilly shoreline visible in the background.

One Day Out:

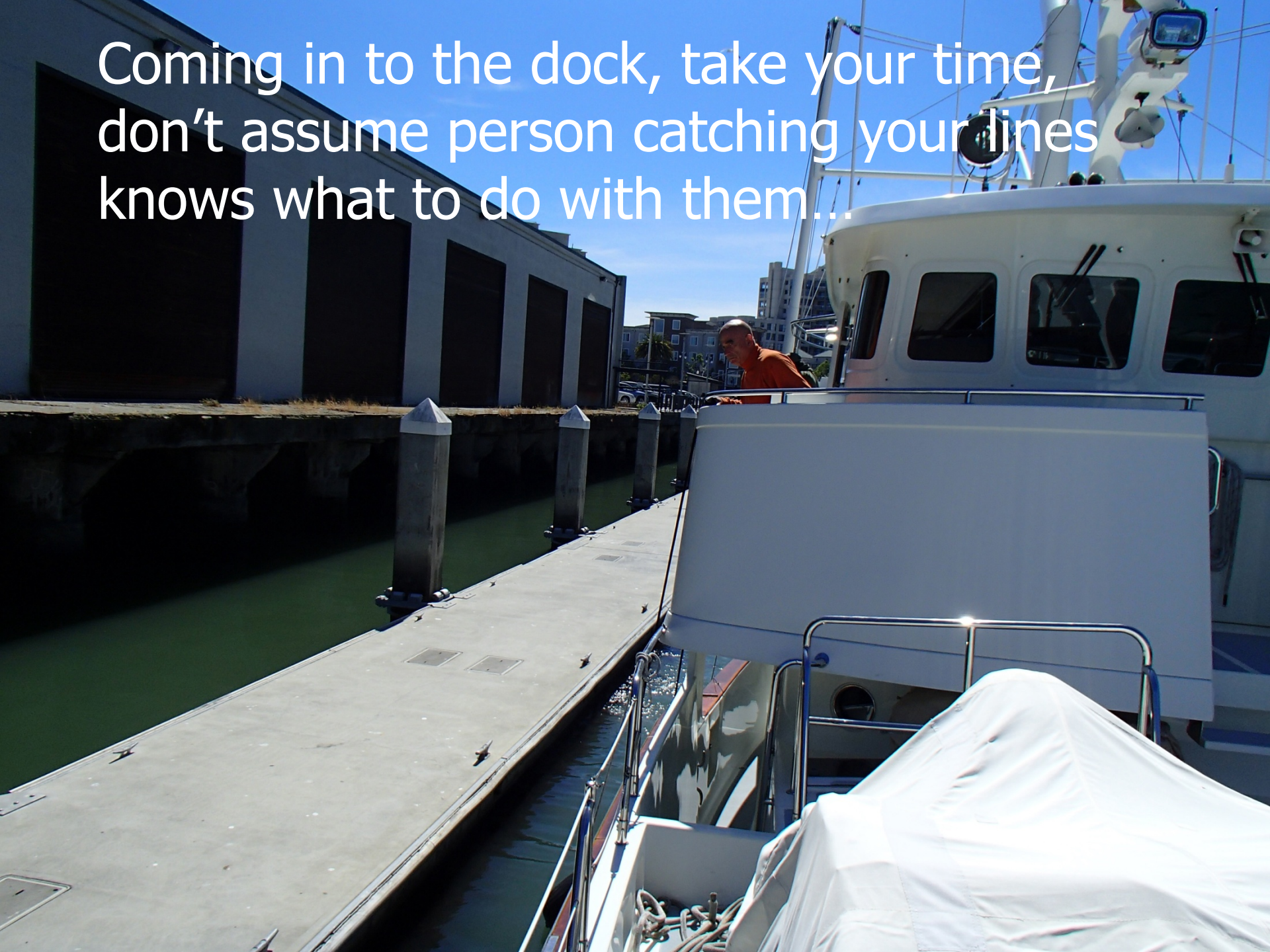
- *Plan your arrival for day light

- *Google Earth for aerial view

- *Call ahead (VHF or cell phone) to confirm your mooring and provide ETA

- *If staying at a slip find out the exact location (sometimes there is a boat there!) and also ask about keys for gates, showers, etc.

Coming in to the dock, take your time,
don't assume person catching your lines
knows what to do with them...



Questions & Answers:
Any tips or suggestions?
Open discussion...



A full-page background image of a sunset over the ocean. The sun is a bright, glowing orb on the horizon, casting a shimmering path of light across the dark, choppy water. The sky is filled with large, billowing clouds that are illuminated from below, giving them a warm, orange and yellow glow. The overall scene is serene and majestic.

Thank you!

Stay tuned, there are behind the scenes discussions about a possible in-person TrawlerFest to be held in Stuart, Florida March 2-6, 2021.

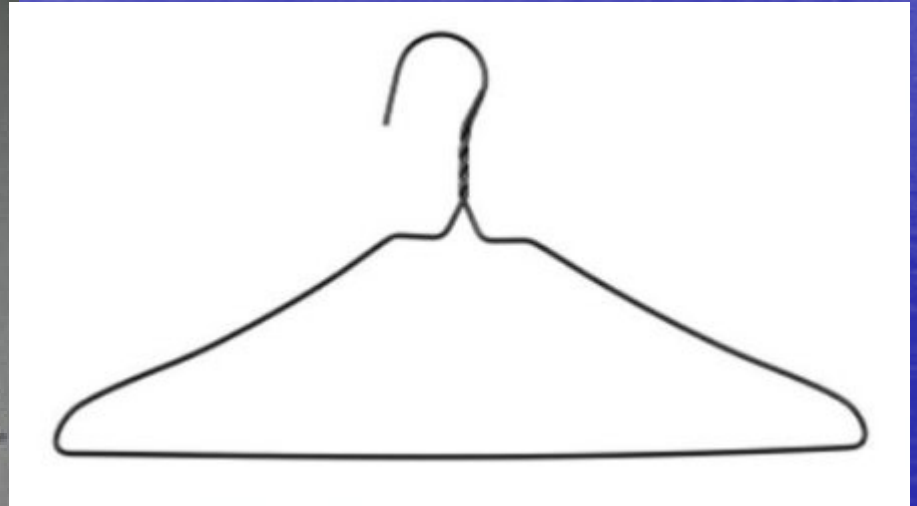
Good Stuff to have aboard

Product review follows...



Light Wedge – magnifier for night mode

Other "tools" Turkey Baster, Wire coat hanger...
(Stuff you have at home, need at sea – also a toilet plunger might come in handy!)



Head sets (aka “marriage savers”)

No more yelling, one ear free. **SENA** and **EARTEC**



Multi-meter – Electrical tester



Stabilized Binoculars

Very nice to have on a bumpy sea



SOSpenders - inflatable life vest, comfortable, attach with tether to jack lines for on deck moving about



Engine Room Bilge Tips

Plug leaks, absorb oil



Carbon Monoxide, Smoke Detector/Fire Alarms



Damage Repair



Rapid Ditch Bag

GPS, VHF, EPIRB, water maker, survival blankets, flares, strobe, first aid, sat phone and more.



Life rafts



MD-3

Offshore Life Raft

6-person international racing raft.



[Learn more](#) ➔



EPIRB, Life Raft, Survival Suits



EPIRB

emergency position indicating radio beacon



Personal Locator Beacons



Lifesling

You need to install a system to attach a lifting line to retrieve an overboard crew and should practice this!



Type IV floatation - throw able

Installation with polypropylene line and strobe



Safety First!

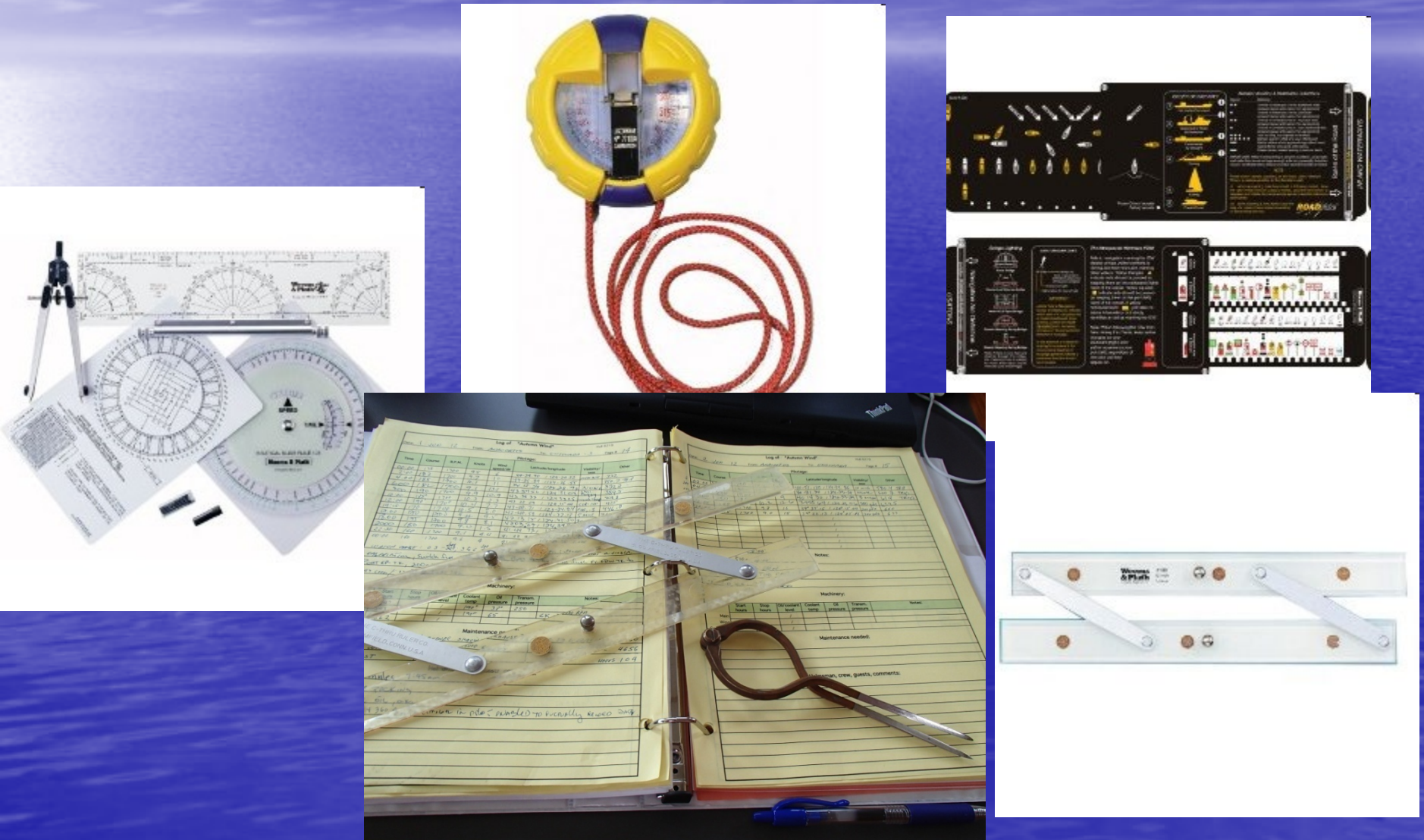
- Medical First Aid Kit
- Red Cross First Aid
- Red Cross CPR
- Life raft – with paperwork inside
- Ditch bag – hand held GPS, VHF, small H2O maker, EPIRB, etc.
- Sun screen, sunglasses and hats
- Galley fire blanket
- Supplemental visuals – distress smoke and water dyes
- Burn injuries
- Defibrillator

First Aid and Injuries

- You need a proper ships medicine cabinet and some basic first aid gear
- Phone a doctor service – www.medaire.com
- Most injuries occur when moving about underway – slipping while wearing socks
- **Move around with one hand for you and one for the boat, keep your weight low and don't grab overhead handrails**
- Burn injuries, cuts are most common
- **Dan Boating – at event**



Navigation Tools





At night - Weems and Plath LIGHT RULE

BOW

PORT

SOUND SIGNALS IN RESTRICTED VISIBILITY

| Sound Signal | Meaning | Definition |
|--------------------|------------------------------------|-----------------------------------|
| One short blast | Maximum 1/2 mile | Steam vessel making way |
| Two short blasts | Maximum 1/2 mile | Steam vessel underway but stopped |
| Three short blasts | Maximum 1/2 mile | Any vessel making way |
| Four short blasts | After signal from a powered vessel | Powered vessel |
| Five short blasts | After signal from a powered vessel | Powered vessel |
| Six short blasts | (Restricted to 1/2 mile) | Powered vessel |
| One long blast | Maximum 1 mile | Vessel |
| Two long blasts | Maximum 1 mile | Vessel |
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| Ten long blasts | Maximum 1 mile | Vessel |

NOTES TO U.S. INLAND WATERWAYS

- Vessels making way shall show a red light forward.
- Tugs pulling ahead or towing astern shall show a red light forward.
- Powered vessels shall show a red light forward.
- Powered vessels shall show a red light forward.

STERN

STARBOARD

MANEUVERING & WARNING SIGNALS

| Sound Signal | Meaning |
|--------------------|---------------------------------------|
| One short blast | I am turning to starboard |
| Two short blasts | I am turning to port |
| Three short blasts | I am stopping my engines to starboard |
| Four short blasts | I am stopping my engines to port |
| Five short blasts | Warning of collision |
| Six short blasts | Warning of collision |
| Seven short blasts | Warning of collision |
| Eight short blasts | Warning of collision |
| Nine short blasts | Warning of collision |
| Ten short blasts | Warning of collision |

COLREGS

For full text of COLREGS, see the back of the book.

BOW

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COLREGS

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Multi-tool – Gerber or Leatherman



Hands free head lamp

Three point harness, better than just a headband

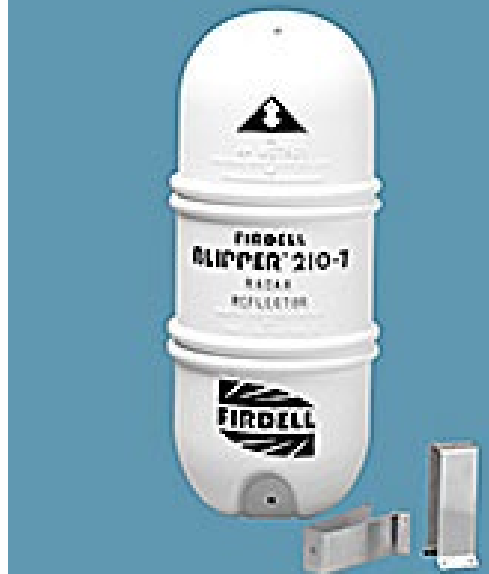
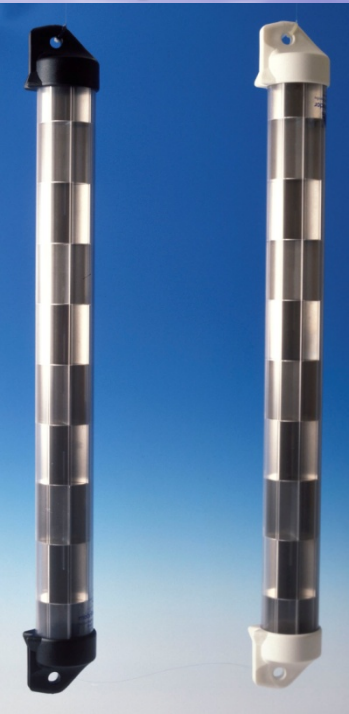


Handheld Thermal Imaging



Radar Reflectors – “signature”

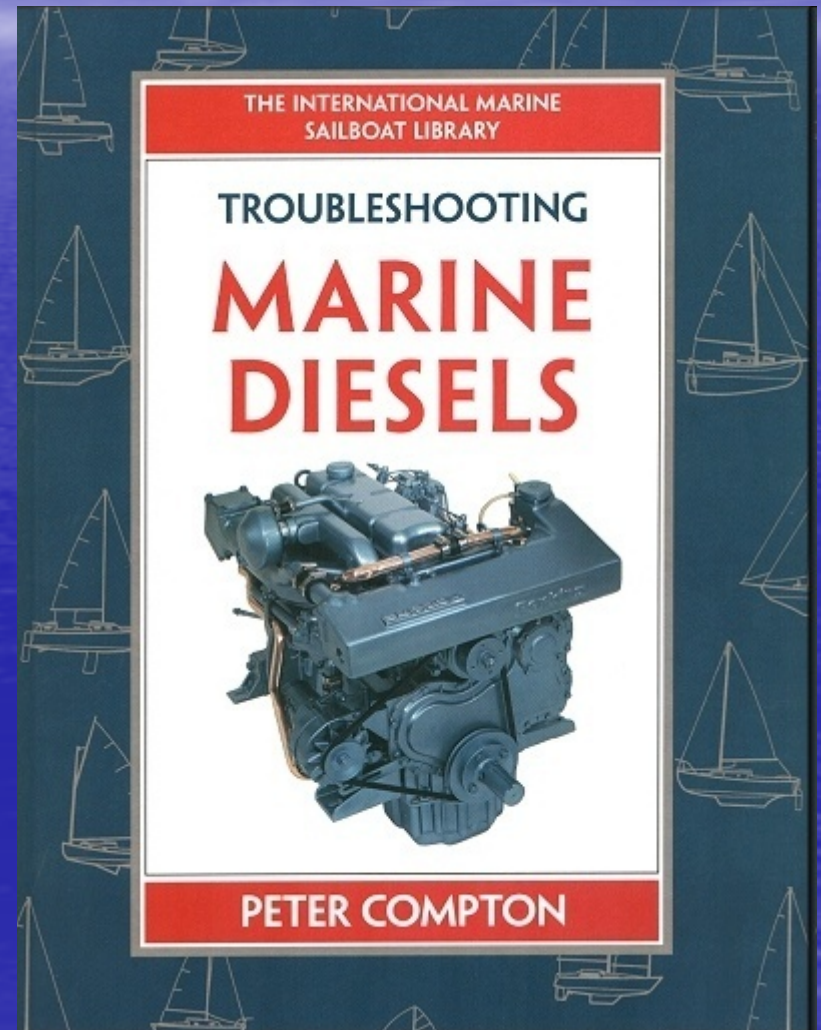
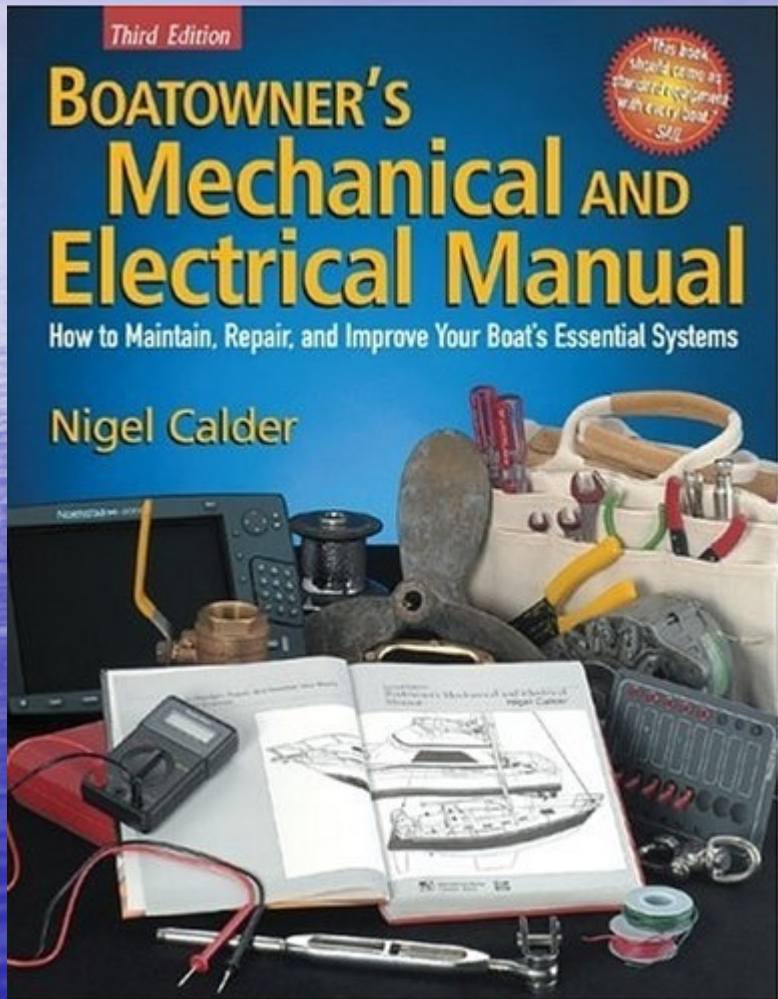
(Firdell Blipper, Davis Instruments)



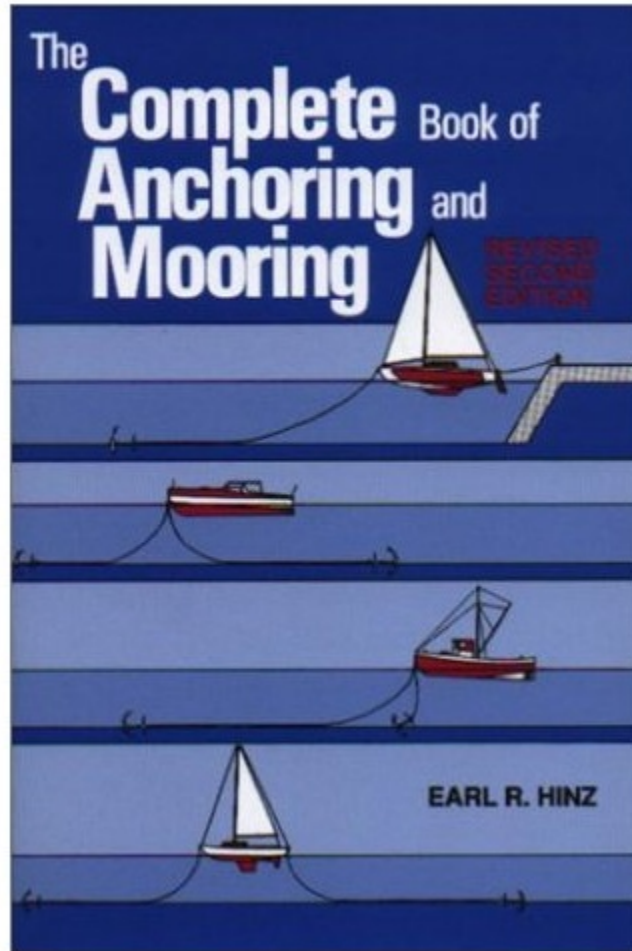
Mask, Fins and Snorkels



Review systems reference and fix-it books



"The" book on anchoring



A great book for coastal cruising

