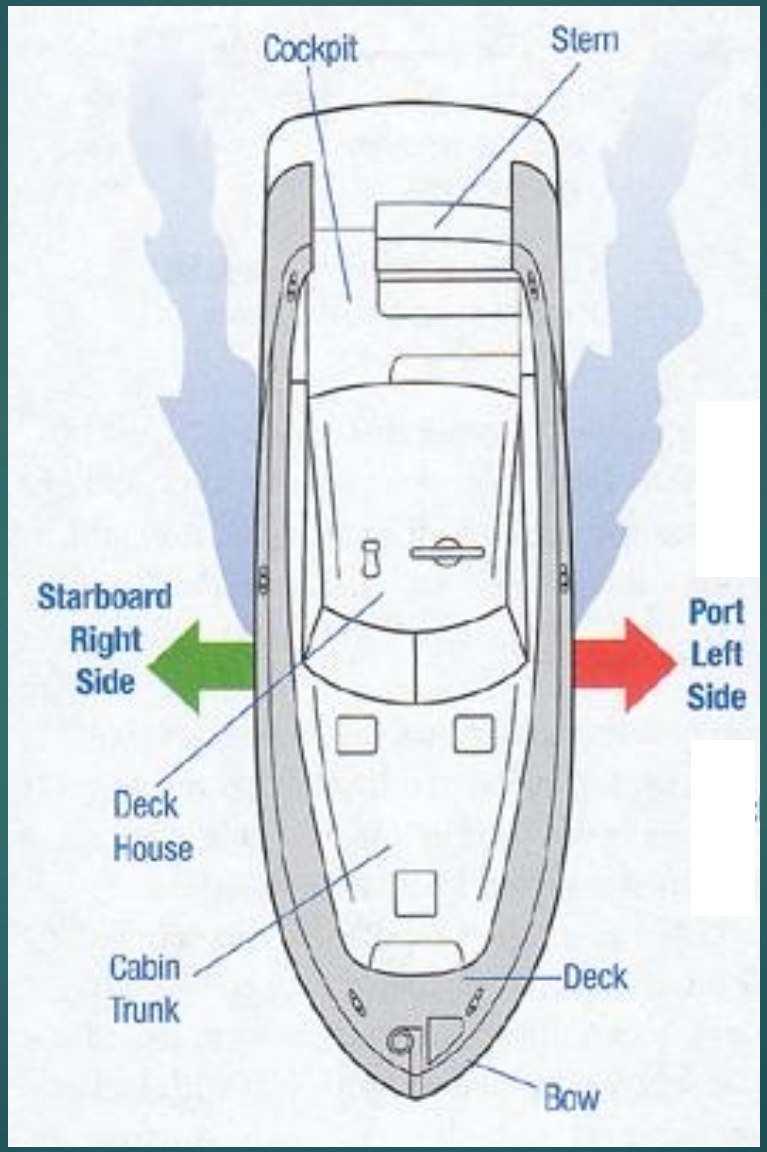
NAUTICAL ACCESS
BOATING CLUB

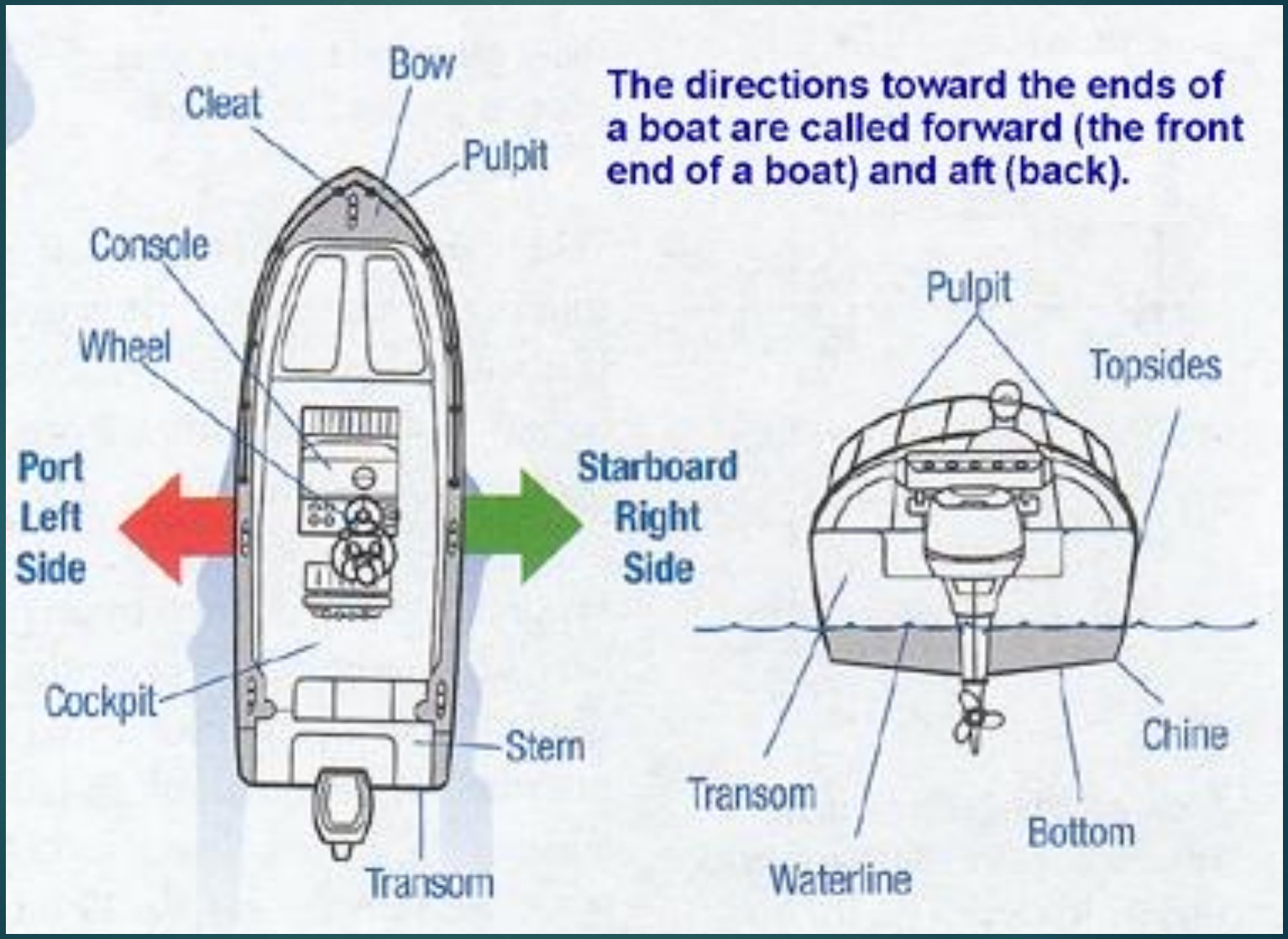
Safe Powerboating Fundamentals

All this content is found in your textbook *Start Powerboating Right*

Parts of the Boat



Parts of the Boat



Operator Responsibilities

- **On the Bay Dress** for weather changes
  - Wear layers, be prepared for changes
- Check the **weather, tide & currents**
- Check for any local hazards
- **Communicate** to passengers before you make speed or direction changes
- Assign **lookouts** for leaving & arriving at the dock and underway
- Be considerate of others on the water and in the harbor

Operator Responsibilities

Getting under way

- Don't exceed Max boat capacities
- Life jackets
  - Number one rule: wear it
- Complete pre-departure check list
- Make sure everyone knows how to board
- Have a Safety talk
  - Safety gear location
  - Fire extinguisher
  - Where things are
  - How to operate basic systems – head, galley,
  - Where to sit and not sit
  - What to do if…

Pre-Boarding Preparation

Check weather conditions

- Not just for today but for yesterday and tomorrow as it changes quickly and you will be aware of patterns
- Internet
  - Weather.gov
  - Sailflow.com
- VHF
  - wx channels – broadcast continual marine forecasts
- Smartphone Apps
    - iBoating
    - Weather.gov
    - wunderground.com

Pre-Boarding Preparation

Tides and currents Awareness

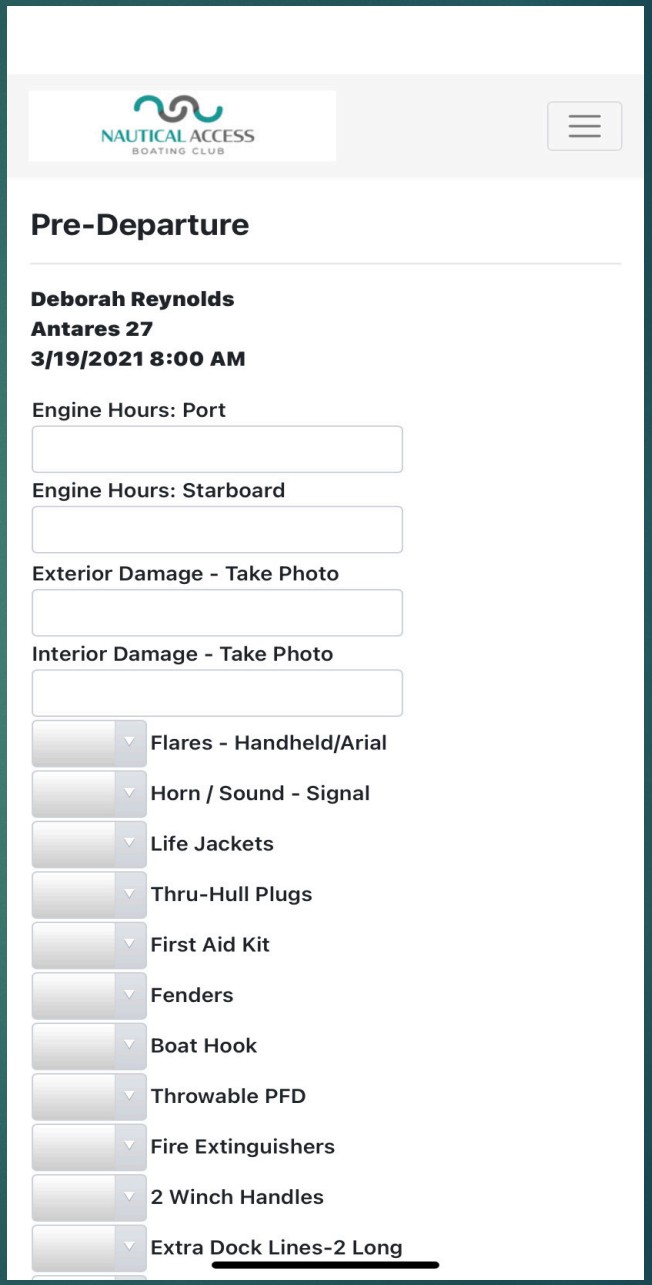
- The currents in San Francisco Bay are generated by the tides. At several locations in the Bay, currents can be as strong as six knots.

- To check current, use a phone app, tide tables and observe motion of water around a fixed object
  - Apps:
    - iBoating
    - Windy.com
    - Navionics

It's easy to check the direction of the tide against objects in the Bay

Pre-Boarding Check List

Before leaving the dock, you will complete a check out inventory and again upon returning



Safety Equipment *p.83*

TYPES OF PFDs

- Five types of PFDs
  - Type I – Offshore Life jacket
    - 22 lbs of buoyancy for adults / 11 lbs for children
    - **Will turn unconscious person face-up**
  - Type II – Near-Shore Life Vest
    - Min. of 15.5 lbs for adults / 11 lbs for children
    - **Will turn *some* unconscious people face-up**
  - Type III – Flotation Aid
    - Buoyancy the same as Type II
    - **Will not turn unconscious person face-up**
    - Most common
  - Type IV – Throwable Device
  - Type V – Special use Devices
    - Inflatable vests, etc.
    - No inherent buoyancy
    - **Must be worn!**

PFD's on-board club boats

Type III

Type V

Safety Equipment On-Board

- 6 TYPE III Life Jackets
- 6 TYPE V INFLATABLE
- Sound producing device
  - Air horn
- B-1 Fire extinguisher
- Approved day/night visual distress signals (handheld & aerial flares)
- One Type IV throwable cushion
- First Aid Kit
- Wooden Plug Set
- Navigation Rules Book

Other On-Board Equipment

- Anchor + rode+chain
- VHF Radio
- GPS
- Knife
- Tool kit
- Hand bilge pump
- Spare line
- Boat hook
- Paper Chart

VHF

Proper radio protocol

- 16/9 Channel
- Channels
  - Tag
- Squelch
- Volume
- Scan
  - Dual
- H/L
  - Lock
- CH/WX
  - U/I/C

VHF Protocol and Usage

- VHF channels are monitored by the USCG, Police and others
- Communication is public
- It is against the law to use these channels improperly
- Beginning transmission
  - Who you are calling 3 times, who you are 2 times
  - Return message or "go to channel XX"
- Ending transmission and a response is needed, say "Over"
- Ending transmission (done): state name and say "Out"
- Emergency codes:
  - Securite, Pan-Pan, Mayday

VHF Protocol and Usage

Channels p. 95

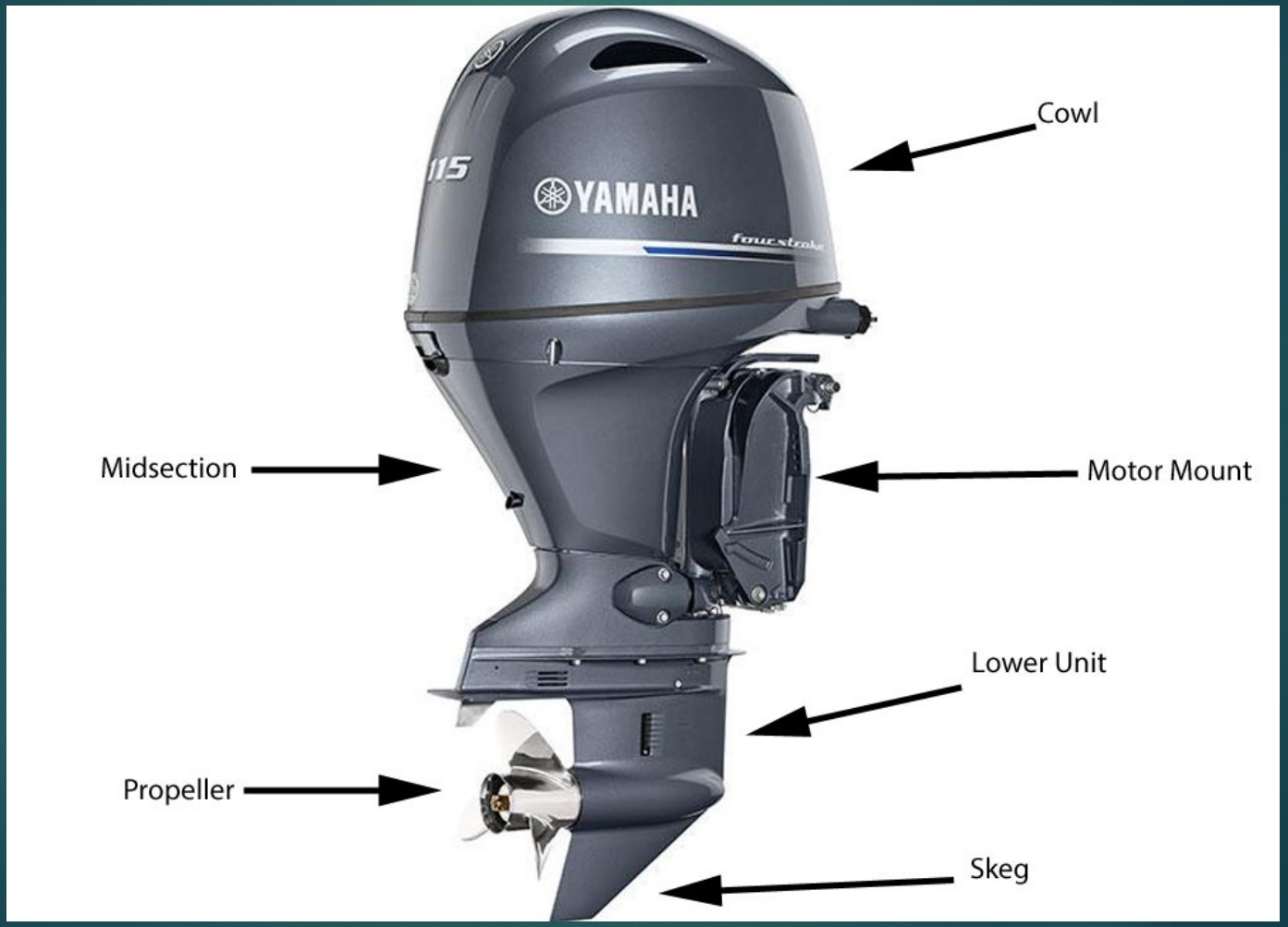
- WX1- WX7: Weather
- 09: Recreational hailing, bridges in the delta
- 13, 67: Navigation safety
- **16: Emergencies, hailing**
- 22A: Coast Guard Liaison, Maritime Safety
- 68, 69, 71, 78A: Non-Commercial
- 70: Digital Selective Calling
- 72: Non-Commercial

VHF Protocol and Usage

- How to operate (demo)
  - When you push the transmit button, you can not hear and others can not talk
- Things to remember
  - Position VHF mic perpendicular to the wind or directly downwind
  - The Hi/Lo function ONLY affects your transmitting power – it does not increase your receiving power
  - The antenna is most effective held straight up and down as high as you can hold it
  - Wait a second after depressing the call button before speaking (it will save people a lot of frustration)
  - BE DISTINCT! It is not a telephone. Get to the point quickly.

Engine Information

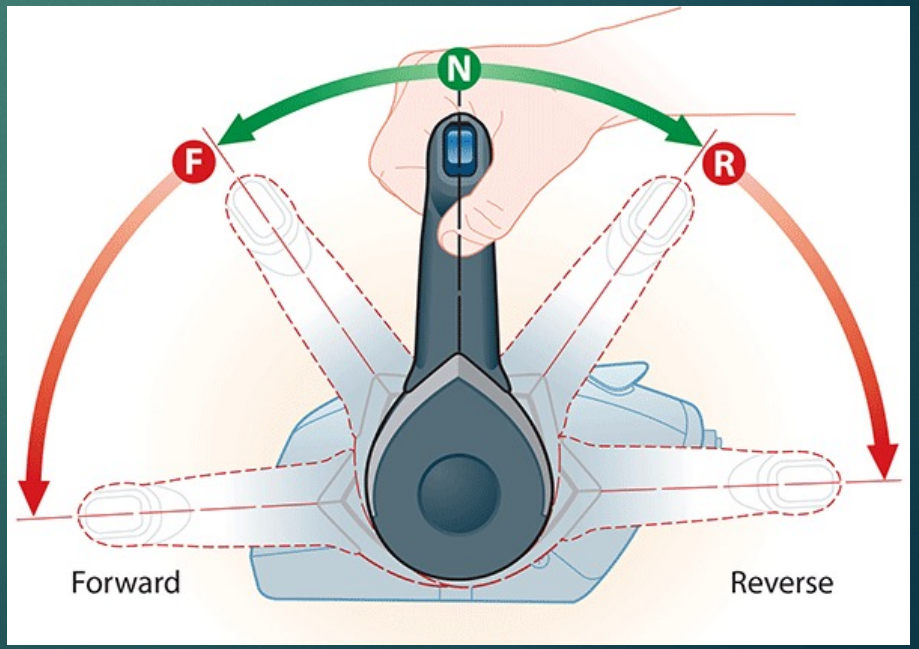
Parts of an outboard engine *p.14*



Engine Information

Engine controls

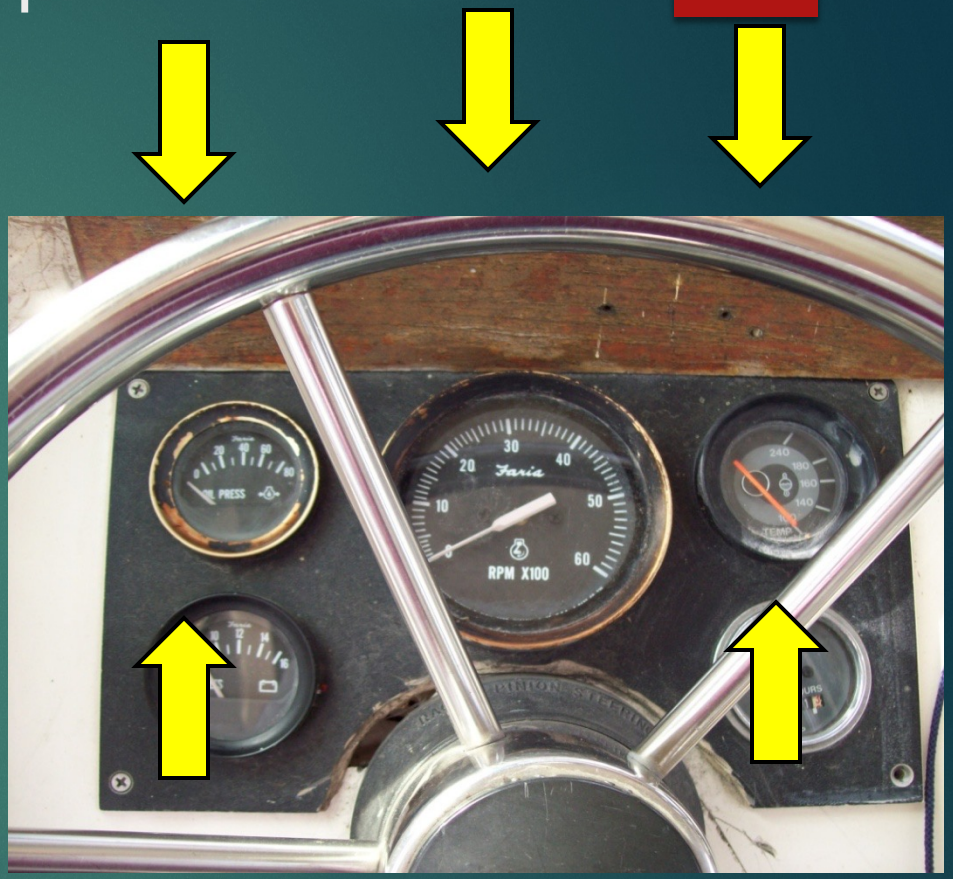
- Dual-function (most common type)
- Single-function (one for throttle, one for gearshift)
- Joystick



Engine Information

Gauges & Guidelines

- Hour Meter
- Volt Meter –
  - 12 – 12.8 volts engine off
  - 13.6 – 14.6 volts engine on
- Oil Pressure –
  - MINIMUM of 20 PSI
- RPM –
  - Idle approx. 800 rpm
- Temperature –
  - 140-160 is normal; 180+ is overheating



Engine Information: Proper Start-Up Procedure

- Inspect all hoses and wires
- Check fuel levels
- Switch battery to the correct on position
- Attach stop switch (kill switch)
- Ensure that gear shift is in neutral
- Turn key to on position to energize gear shift
- Lower engines into water
- Turn key to start

Maneuvering Concepts

Uncontrollable forces affecting a boat

- Wind
  - Windage causes bow to fall off and boat to drift sideways
  - Increased freeboard = increase windage effect
  - Windage affects your turning arc
- Current
  - Boat will move as if on a conveyor belt
  - Size, shape, etc. do not matter – current effects all things equally
- Waves & Wakes

Maneuvering Concepts

- Planing hulls behave like displacement hulls at low speed
- At a certain speed, the hull goes through a transition stage called semi-displacement as it climbs the face of its bow wave
- Once the boat moves over the top of its bow wave, it levels off and begins to plane
  - Where is the most optimum fuel consumption for a planing hull?
    - Just as the boat has come **comfortably on a plane**

Maneuvering Concepts

How boats turn

- Directed Thrust
  - Outboards, stern drives and jet drives
  - When a propeller is turned at an angle, its thrust is directed at an angle, which turns the boat
  - If propeller is not rotating, then no thrust = no steerage
- Pivot Point
  - In forward, the pivot point is located 25% to 40% aft of the bow
  - Always steer the pivot point along the path you want to steer!

Knots To Know & Line Handling

- Cleat hitch
- Bowline
- Half hitches
- Clove hitch
- Heaving a line
- Coiling and stowing

www.animatedknots.com

See resources page in booking site for more sites

Navigation Aids

Aids to Navigation

Also known as ATONS

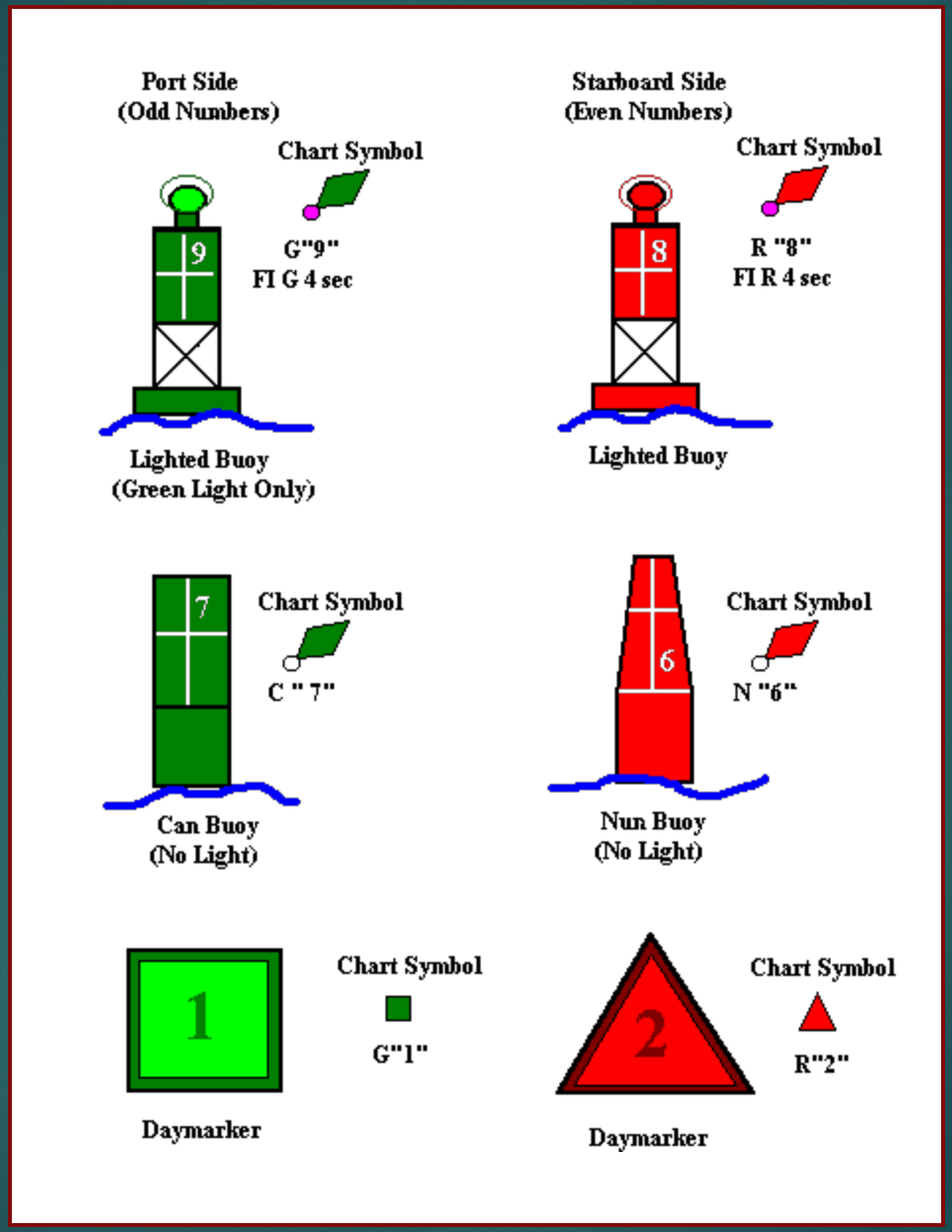
Lateral Marks – system of lateral marks used to indicate on which side a mark should be passed when returning from seaward

- In US waters, red marks are kept on the starboard side; green marks are kept on the port side
- When an approach from seaward cannot be determined, the Conventional Direction is used, which is a clockwise rotation around the US.

Navigation Aids

Aids to Navigation

- Some tricks:
  - Red – Right – Returning // Green – Going – Out
    - Retuning from sea – clockwise direction around the US
    - Entering a harbor is always ‘returning from sea’
  - Port = Red wine
  - 7-UP = green can with odd number
  - On the ICW, yellow triangles indicate shoreward side of channel and squares indicate the seaward side. Think triangles for mountains

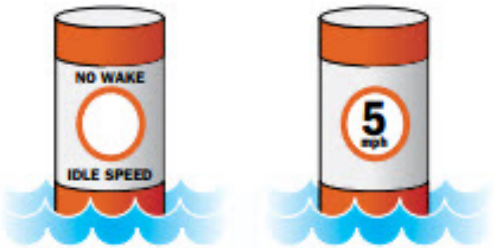

Port Side
(Odd Numbers)
Chart Symbol
9
G"9"
Fl G 4 sec
Lighted Buoy
(Green Light Only)
Starboard Side
(Even Numbers)
Chart Symbol
8
R "8"
Fl R 4 sec
Lighted Buoy
7
Chart Symbol
C " 7"
Can Buoy
(No Light)
6
Chart Symbol
N "6"
Nun Buoy
(No Light)
1
Chart Symbol
G"1"
Daymarker
2
Chart Symbol
R"2"
Daymarker

Aids to Navigation

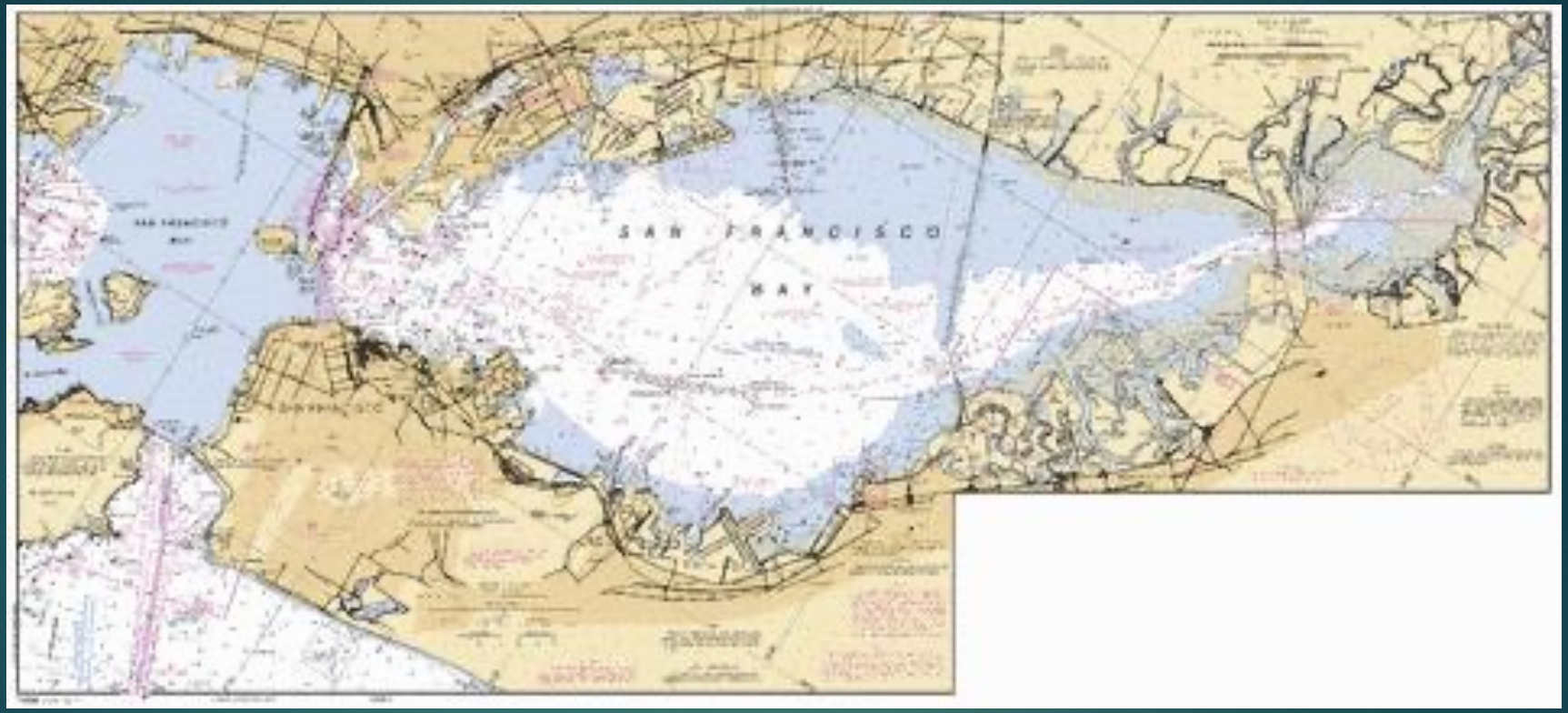
- Red and Green Marks
  - Port Lateral Marks: will be green, odd numbered cans or squares
  - Starboard Lateral Marks: will be red, even numbered nuns or triangles
  - Preferred Channel Marks: will be red and green banded and can be any of the above shapes (nuns, cans, squares or triangles), top band is preferred channel
  - ALL MARKS can be day-markers, buoys, lit or unlit, flashing or solid, with sound or without
- Other marks include safe water marks, isolated danger marks, special purpose marks and information/regulatory marks
- Your chart will indicate the type of mark you are expecting

Aids to Navigation

Uniform State Waterway Marking System

Symbol	Meaning	Examples
	**Danger** A diamond shape alerts boaters to hazards	
	**Restricted Operations** Marks with a circle indicate areas with regulated operations	
	**Exclusion** A diamond shape with a cross means boats are prohibited from the area	
	**Information** Marks with a square provide helpful information such as directions, distances, and locations	

Charts



Paper charts are on board every boat. See the Resources Page in the booking site for a tutorial how to read paper charts. You should have this knowledge even if using electronic charts.

Navigation Rules *p.107*

- Also known as "Rules of the Road"
- Don't confuse with ATONS
- Inland Rules vs. International (International 72COLREGS)
- Maintain proper lookout
- Safe speed (Depends on visibility, traffic, maneuverability, hazards, conditions)
- Operating in narrow channels
  - Vessels less than 20m (65ft) SHALL NOT impede passage of a vessel that can only operate in the channel
  - A vessel engaged in fishing (NOT trolling) shall not impede the passage of any other vessel
  - On rivers (Inland Rules): vessels proceeding downbound (w/the current) shall have right-of-way over an upbound vessel

Navigation Rules

- Rule 2 of the Navigation Rules

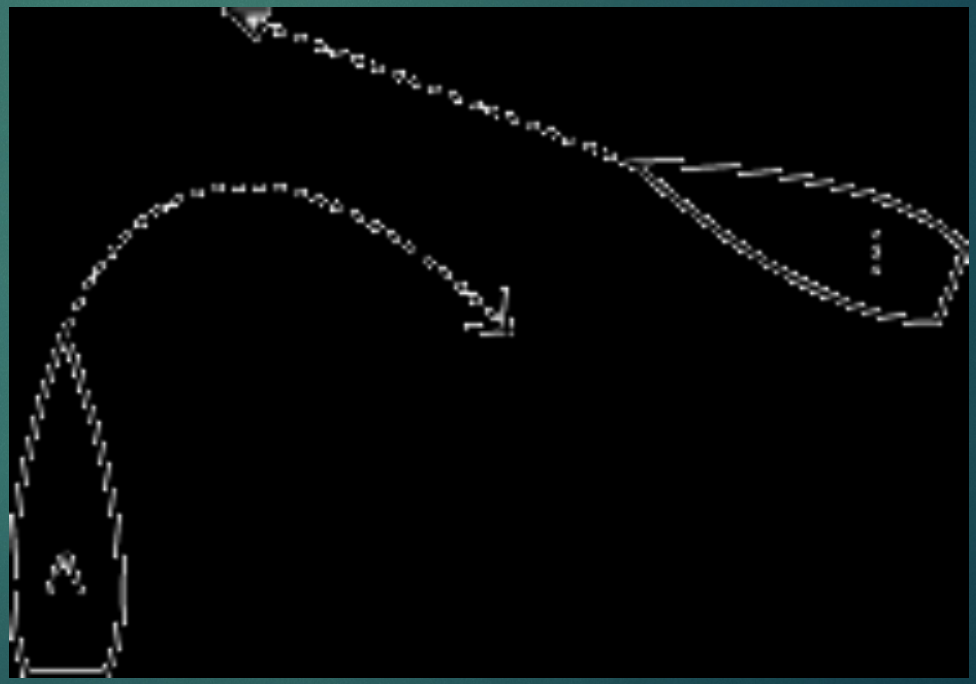
  "Nothing in these Rules shall exonerate any vessel, or the owner, master or crew thereof, from the consequences of any neglect to comply with these rules…or by the special circumstances of the case."

- Rule 7 of the Navigation Rules

  "Every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist."

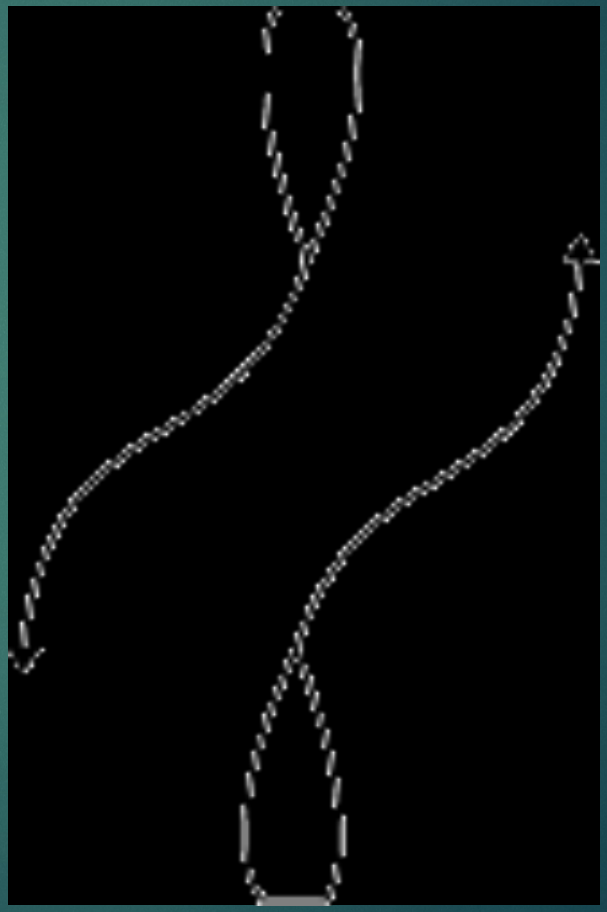
Navigation Rules

Starboard over Port



Navigation Rules

Head On



Navigation Rules

- Vessels underway must always keep clear of:
  - A vessel not under command (i.e.. Adrift or on fire)
  - A vessel that is restricted in its ability to maneuver (i.e.. Dredging)
  - A vessel engaged in fishing with nets, lines or trawls
    - DOES NOT include fishing with trolling lines

- Remember – the ***stand on*** vessel has the right of way, the ***give way*** vessel must alter her course

- A formal accident report must be submitted within 48 hours if a person dies, there are injuries requiring more than first aid or if there is more than $2000 in damage.

Navigation Rules

Right of way rules

Over	Overtaken
New	Not under command
Reels	Restricted in its ability to maneuver
Catch	Constrained by draft
Fish	Fishing
So	Sailing
Purchase	Power driven vessel
Some	Seaplane
Worms	WIG

Practical Application

When In Doubt, risk is assumed to exist!

When in doubt, assume the other captain doesn't know the rules. Take action needed to keep you and your vessel safe.

"I had the right of way" is not an excuse…..

California Operating Regs

- California law requires a person to be **16 years of age or older** to legally operate a vessel powered by a motor of **15 hp** or more, including personal watercraft (PWCs).
- Exceptions to this law are:
- Persons **12 to 15 years of age** may operate a vessel powered by a motor of 15 hp or more, including PWCs, if they are supervised on board by a person at least 18 years of age.
- There is no age restriction for operating a **sailboat under 30 ft**. long (with wind as the main source of propulsion) or a dinghy used between a moored vessel and shore or between two moored vessels.

Wear Life Jackets

- Every child under **13 years** of age must wear a lifejacket of appropriate size anytime on board a vessel of **26 feet** or less while underway, unless they are in the cabin.

Boating Accident Form

Must be submitted to DBW within:

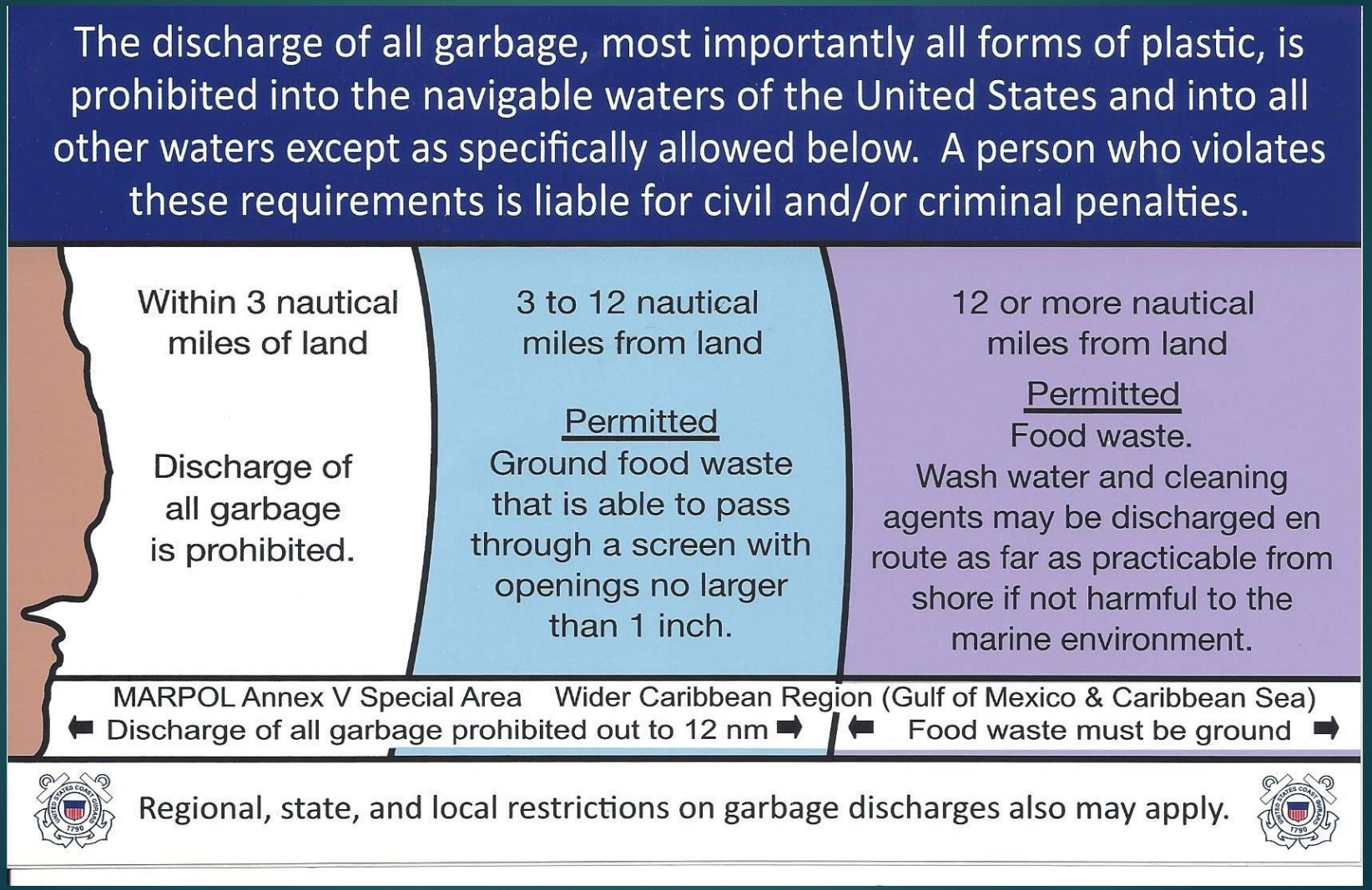
48 Hours

- Medical treatment beyond first aid
- Person dies within 24 hours
- Person Disappears

10 Days

- Death after 24 hours
- $500.00+ in damage
- Complete loss of vessel

Marine Environment Laws



BOATING EMERGENCIES

Rendering Assistance

- Federal Regulations require that the master or person in charge of a vessel is **obliged to assist** others in danger unless rendering such assistance would place his/her own vessel, crew or passengers in serious danger
- **Fine** up to $1,000.00 or imprisonment up to 2 years.

Person in Water (PIW)

Most **Fatal** accidents are from falling overboard

Causes:

- Improper **boarding** (stepping on gunwale)
- **Sitting** on bow, stern or gunwale while underway
- **Abrupt maneuvers** starts, stops and turns
- **Thrown** off while hitting large wake

PIW Procedures

What to do:

1. **Shout** "Crew overboard"
2. **Throw** buoyant objects (cushions, life rings etc.)
3. **Assign Spotter** to keep continuous sight
4. **Recover** (next slide)

PIW Recovery

- **Turn** towards the PIW
- **Approach** PIW with bow to the forces, using minimum control speed, PIW on drive'rs side
- Shift into **neutral** drift to them slowly
- Make **contact** with paddle, boathook, or line
- **Turn OFF motor** (Critical Fail)
- **Attach** them with a line to the boat
- Bring PIW back **aboard** vessel

Fire Onboard

- **Position** boat so people are downwind
- Everyone put on **PFDs**
- Turn off **fuel** source
- **Extinguish** using P-A-S-S
- If danger is imminent then **hail** Coast Guard
- **Abandon** ship

Running Aground

- Assess injuries and boat damage
- Search for any leaks
- Attempt to free boat
- May need to wait for tide (Kedge Anchor)
- Signal for help if needed

This is a brief overview of important information to know.

Detailed information on all topics covered can be found in your textbook, **Start Powerboating Right!**