

2005 ABC

Chapter 3 Part 2

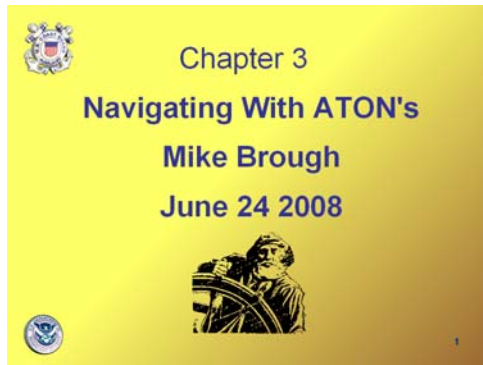
Navigating with ATON's

Revision to D-13 Local Notes

Instructor Notes for Mike Brough

Mike Brough

June 24 2008



Slide 1

June 24 2008

June 24 2008

New graphics "Navigating on Water"
New Slide - "Lateral Aids & Preferred Channel"
New Slide - "Chart Scale"

June 23 2008

Cleaned and framed pictures with .03 Blue Line

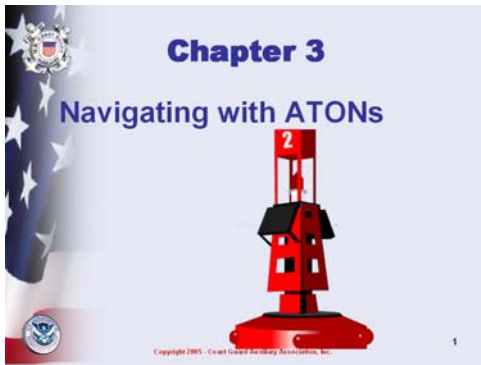
New Slides: Ballard Locks – Aerial view of locks
Locks – Picture entering small locks
Transiting Locks – operation of locks
Locking Hints

VTS Lanes – New Chart picture.
Regulatory Markers - labeled

New Slides: Bridge clearance, depth characteristics
Dover Straight
Aids to Navigation,
(Red Right Returning 2 slides)

Combined National & District slides

ABC Chapter 3 Part 2 Navigating with ATON's D-13 Revised MB-1



Slide 2

This chapter is designed for people who have small boats used in protected waters. The aids to navigation information is not all-inclusive for that reason. If other types of navigation aids are used in your boating area, by all means discuss them with the students.



Slide 3

Just read the four. Will discuss each one

U.S. & Canada is IALA Region B
(International Association of Lighthouse Authorities)

Europe IALA Region A

First Standards attempted in 1889

1936 Geneva Convention

Red to Port - White to Starboard

U.S. Red to Starboard not Signatory

1946 Europe Navigation Aids Reestablished

9 Different Systems in use.

1965 IALA Committee to harmonize existing rules

1971 Dover 2 ships hit same wreck 51 lives lost

Five types of Marks Defined

Lateral

Cardinal

Isolated Danger

Safe Water

Special

1977 IALA Region A implementation began

1980 "The IALA Maritime Buoyage Systems"

Allowed to choose Region A or B

ABC Chapter 3 Part 2 Navigating with ATON's D-13 Revised MB-1



Slide 4

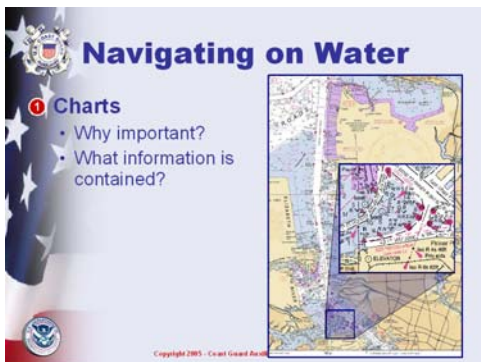
Before opening the slide

Ask What is an ATON?

Ask what ATONs are in their waters or on land?

Any object visible from the water and shown on a chart can be used to fix your position.

Unofficial ATON's Condo's or Ray's Boathouse at Shilshole.



Slide 5

Charts

Mark dangers

Show navigation aids

Help determine position

Show key shoreline features

Need a Chart to fully understand what an ATON means

Probably figure out an ATON even if you don't remember what it means if you have a Chart.

You should have local charts aboard and know how to read them!

Consider taking our Navigation course.

Remember: Charts tell you where you are

They tell you where you are going

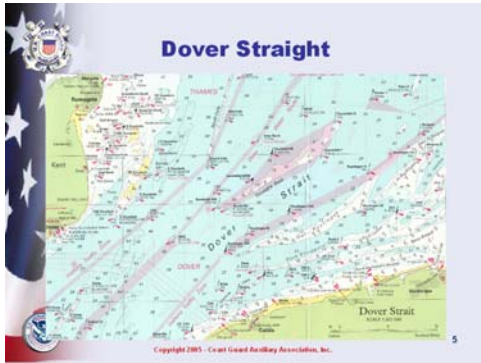
They tell you where you do not want to be (danger area)

You drive your car like Coastal Navigation – looking at the shore – looking at the edge of the road

A Chart will show Buoy G-1 at Shilshole Entrance area through about R-22 at Webster Point.

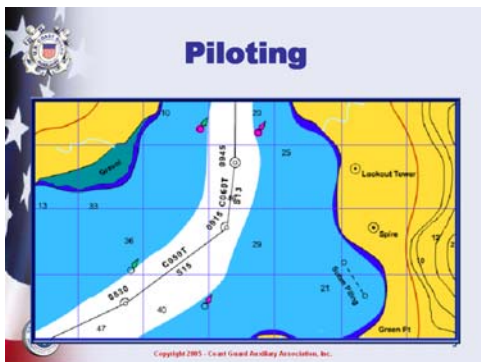
Chartplotter – can be like looking through a small window

Fathoms – Feet - Meters



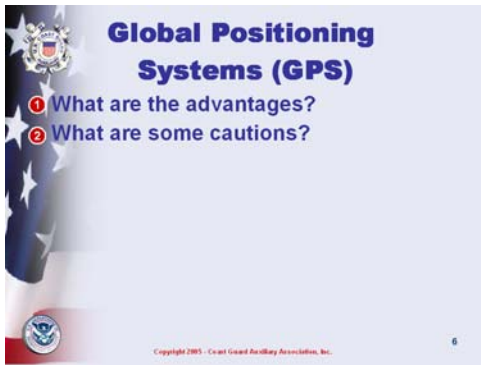
Slide 6

IALA Region A
Cardinal Marks
Colors Reversed from IALA Region B (U.S.)



Slide 7

ASK: what is piloting?
finding your way on the water using visible marks
Using the slide example, discuss:
plotting a course line
determining direction
dead reckoning
taking bearings to check position



Slide 8

ASK: the questions on the slide.

Advantages:

- accurate and reliable positioning**
- can give speed and direction**
- “waypoint” navigation**

Cautions:

- GPS won't show hazards (Unless Mapping)**
- gives only coordinates, won't show where you are**
- electronics can fail**
- Original Navigation hazards placed relative to shore.**
- Not so good knowing where the land was.**
- S.E. Alaska and other areas 1/4 mile positioning errors found**
- 300 ft errors based on shape of the earth**

**NEVER USE A SINGLE POINT OF NAVIGATION –
LOOK OUT THE WINDOW – ARE YOU REALLY 300
YARDS OFF SHORE**



Slide 9

Characteristics of the different waterway markers



Slide 10

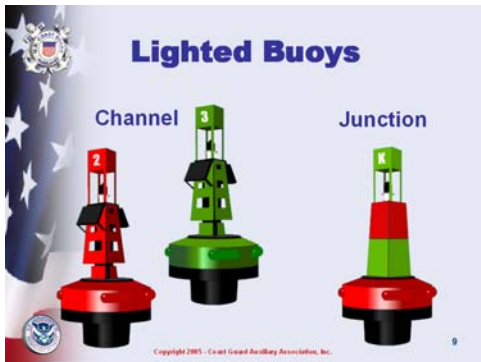
Define the lateral system
the “traffic signals” that guide boaters
must be passed laterally (alongside) to stay in channels

ASK: does anyone know the memory aid using the term “red”?

Discuss “returning from sea” and “red, right, returning”

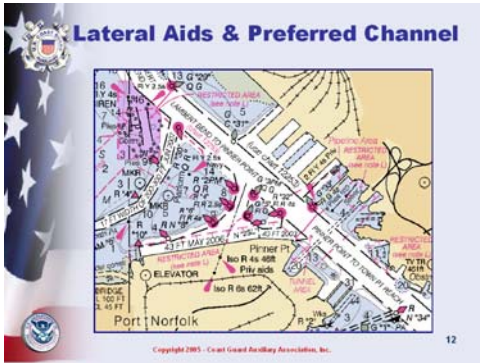
ASK: the difference between nun and can buoys
color
shape
numbering

Classroom aid: draw and discuss the chart symbols for these unlighted ATONs



Slide 11

Preferred Channel



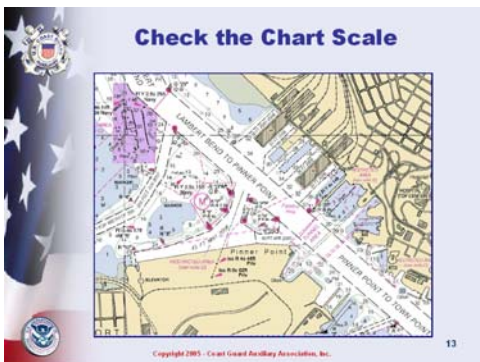
Slide 12

Lateral Aids & Preferred Channel

1:40,000

Range Markers

Note: Shallow Water Blue



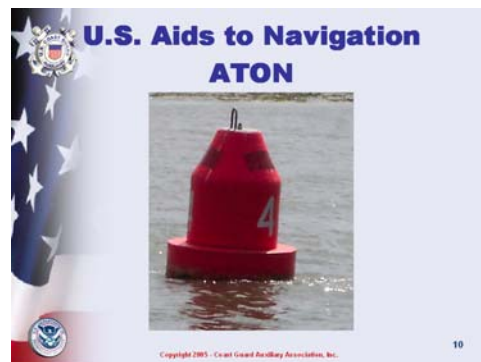
Slide 13

Check the Chart Scale

1:20,000

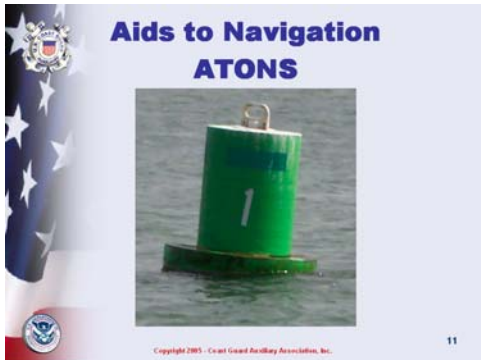
Range Markers

**Note: Shallow Water Blue is Shallower
Water looks deeper but isn't**



Slide 14

It is illegal to tie to any ATONs.



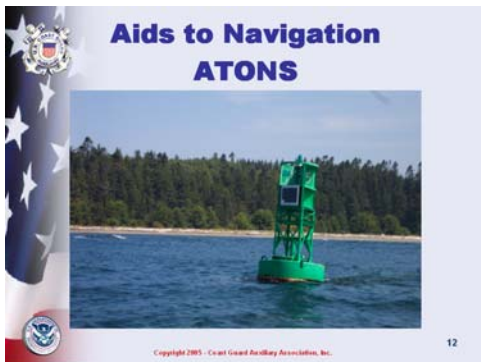
Slide 15

Ask How would you describe this buoy?

Features of the green buoy:

- odd numbers**
- can shape**
- green light**
- could have a noise device**
- left side of channel coming home**

It is illegal to tie to any ATONs.



Slide 16

Tower type of bouy

Features??

- odd numbers**
- can shape**
- green light**
- could have a noise device**
- left side of channel coming home**

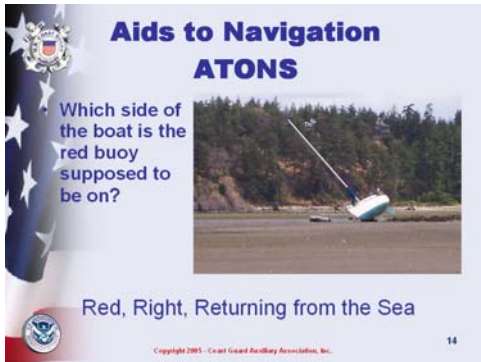
Ask How would you describe this buoy?

Features of the red buoy:

- even numbers**
- nun shape**
- red light**
- could have a noise device**
- right side of channel coming home**



Slide 17



Slide 18

Another Oops (This is on the Swinomish Channel, south of LaConner, Washington.

Oops (local picture in the San Juans of Washington



Slide 19



Slide 20

Islands & Swinomish Channel at La Conner



Slide 21

ASK: what is the difference between a Buoy and a Beacon

What side of the boat is the Preferred Side to pass Buoy:

- Floating,**
- Anchor line**
- Watch Circle**
- Position Approximate**

Beacon:

- Attached solid to the earth**
- Position More Accurate (Mostly)**



Slide 22



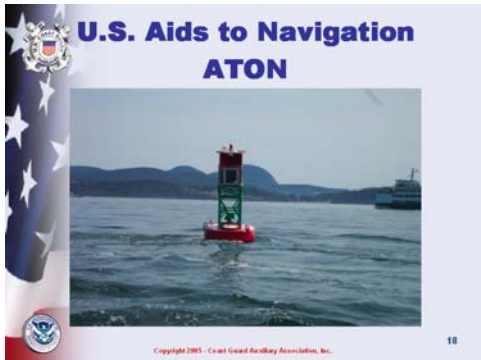
Slide 23

But looks like Left Side
LOOK AT THE CHART

ASK: What are the features of this day board

Fixed
Green
Green Light
Square (like a Can)
Odd Number

What Side of Boat?? If Returning from the Sea
Probably – LOOK AT CHART



Slide 24

Preferred Channel Marker

Discuss the lateral purpose of the junction or preferred channel mark.

Discuss what are the features of this ATON

Classroom aid: Draw and discuss the chart symbols for these aids

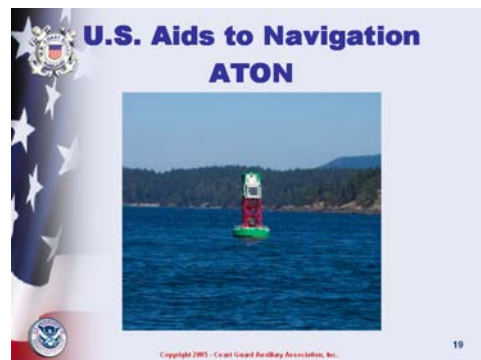
Which side of the boat should this marker be placed if returning from the sea??

ASK: What are the features of this day board

Fixed
Red
Red Light
Triangle (Pointed like Nun)
Even Number

What Side of Boat??

Red Right Returning from the sea



Slide 25

Which side of the boat should this marker be placed if returning from the sea??



Slide 26

Preferred Channel Marker

Discuss what are the features of this ATON

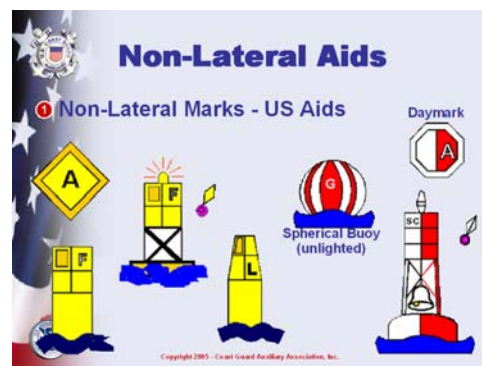
Classroom aid: Draw and discuss the chart symbols for these aids

Which side of the boat should this marker be placed if returning from the sea??

Preferred Channel Marker

Discuss what are the features of this ATON

Classroom aid: Draw and discuss the chart symbols for these aids



Slide 27

Red White – Safe Water

No Numbers – May be Lettered

Used for:

Fairways

Mid-Channels

Offshore Approach Points

Unobstructed Water on all Sides

Shilshole locks Mid-Channel Approach



Slide 28

Description of Special Purpose ATON?

Where have you seen any of the big yellow buoys?

Response: Puget Sound Vessel Traffic System - VTS (lanes)

Discuss the meaning of
Yellow marks
Red and White marks

Yellow - Not Safe Water Marks

May be Lettered

Alert the vessel operator to a special feature or area:

Anchoring

Traffic Separation

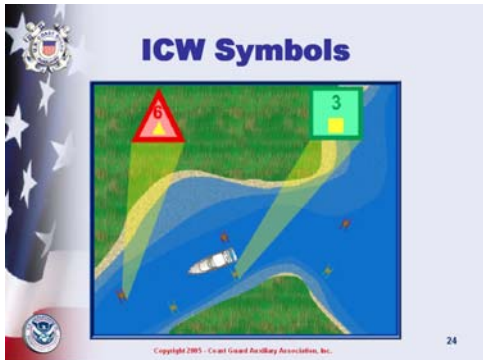
Fish Net Area

Cables or Pipelines

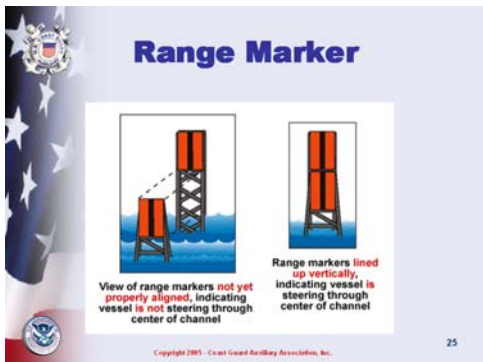
Military Exercise Areas



Slide 29



Slide 30



Slide 31

Discuss the meaning of these Regulatory Aids.

Where are these found?

Classroom aid: break students into groups, provide each group with a chart and small model buoy made of paper or dowels, and ask them to use the information discussed in this section to locate these aids on a chart.

The instructor will be free to mentor each group and answer questions

Square – Information

Diamond – Danger / Hazard

Circle – Restricted Operations

Crossed Diamond – Exclusion Area

Intercoastal Waterway

How do the range markers work?

Explain and demonstrate with large flash cards

Are these always seen over the bow?

Mark areas without ATON's on the water

Good to mark center of Channels

Drive toward the bottom board



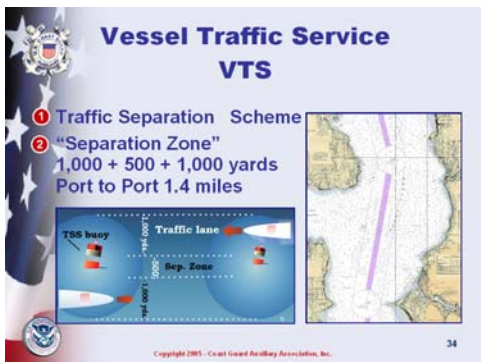
Slide 32



Slide 33

Buoy System on the Waterway

Have the student identify each of the markers and explain what actions they would take if underway.



Slide 34

<http://www.uscg.mil/d13/units/vts/RecPamphlet4.htm>

This is rule 10

Hand out the VTS pamphlet from USCG VTS at pier 36

Design a slide for rule 9 on the Columbia & other rivers

Cross VTS lanes at Right Angle

Enter or leave lanes at a small angle

Bridge on some Freighters is 130 ft off the water.

Blind spot under bow 1/4 mile or more.

10(j) A vessel of less than 20 meters in length or a sailing vessel shall not impede the safe passage of a power-driven vessel following a traffic lane.

Freighter – 22 / 24 kts - Kingston Turning Buoy to Shilshole = = 10 MINUTES

What does the helms person have to do to remain in the channel when they see this set of range markers?

Drive to Starboard / Right



Slide 35

ASK: Why is this true??

Electronics may fail but a compass never will
Can't drive a straight course in Impaired visibility without some sort of aid.

About 30 to 45 seconds before doing a slow turn without an aid.

True North vs. Magnetic North – Variation

What is the Variation in Seattle – about 19E

Deviation and your boat

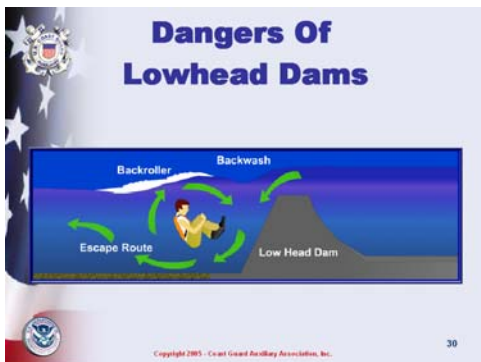
Large local problems on your boat

Large hunks of metal

Stereo Speakers

Lights by the compass

Stuff in your pockets



Slide 36

Discuss the dangers of these dams (Discuss more if they are in your boating area)

Any dam is a problem

Fast current in some areas that can prevent boats from operating safely – push a boat over the spillway.

Some boats can't leave or enter their marina located just above the dam at the Ballard Locks during high flow rates.

Strong currents below a dam.

Spillways can swamp a boat below a dam.

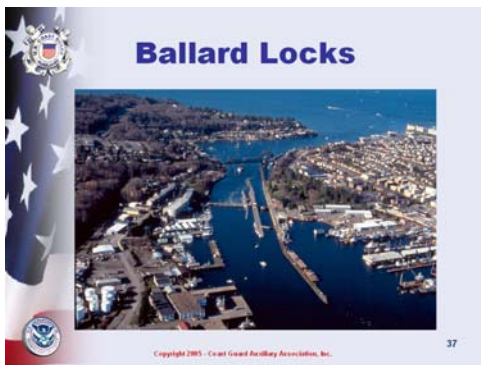
ABC Chapter 3 Part 2 Navigating with ATON's D-13 Revised MB-1



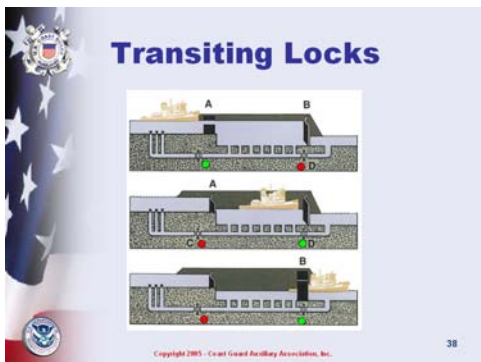
Slide 37



Slide 38



Slide 39



Slide 40

Relate information about locks in your boating area.

Obtain and pass out written pamphlets from the agencies.

Discuss safe transit

sufficient dockline and fenders

don't pass other boats

One of the Best Free Shows in Town

Short classes at the locks on how to transit.

Ballard Locks / Hiram M. Chittenden Locks

U.S. Army Corps of Engineers

Equipment:

Lots of Fenders Both Side.

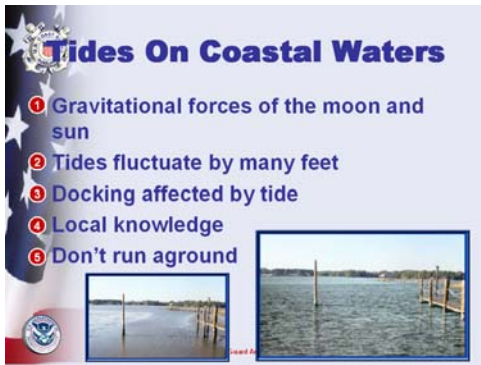
Two 50 ft. Lock Lines with 12 inch Dia. Eye on each line

Large boats first

Follow instructions of the Lockmaster!!

Enter in order of arrival (subject to boat size)

Might be on the wall or raft to another boat or have a boat raft to you.



Slide 41

Seattle area 10 / 12 feet range.

Lakes also go up and down – be carefull.

Varies greatly by area – Olympia higher tide range – Pt. Angeles less tide range

Tides cause currents – but not always a constant time offset relationship.

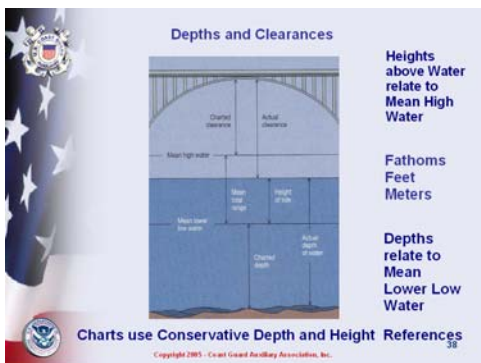
Oregon & Washington have areas of high tidal CURRENTS up to 8 or 9 kts.

Deception Pass – YOU MUST LOOK AT THE DECEPTION PASS CURRENT TABLE – NOTHING ELSE WORKS!!!!!!

Water Depth MLLW – check the chart and tide table before anchoring.

Some GPS units & computers have built in Tide Tables.

Different tables in Euro vs. U.S. GPS Units.



Slide 42

ASK: the question on the slide

Is there enough clearance?

Chart will show height

Do you need to contact the bridge operator?

How do you ask for a bridge opening in Seattle?

Bridges will not open for vessel traffic during rush hour traffic or special events.

Appointment required for late night.

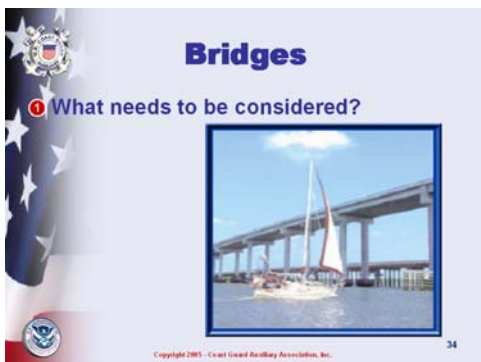
Clearance under Bridge based on MHW

How tall are you?

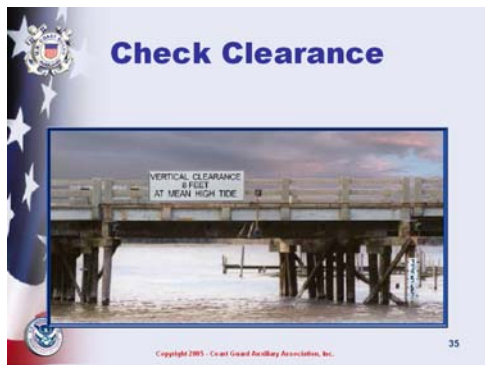
Some boats have a sign:

Mast = xx Feet.

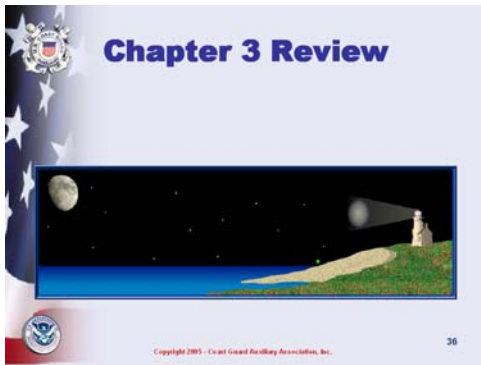
Keel = xx Feet.



Slide 43



Slide 44



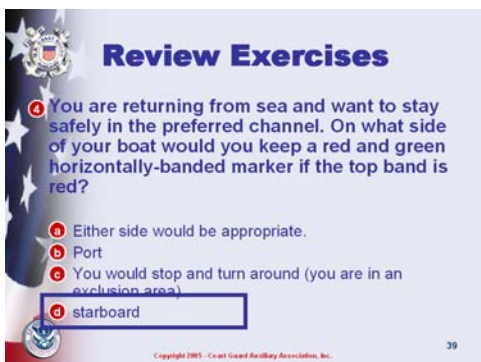
Slide 45



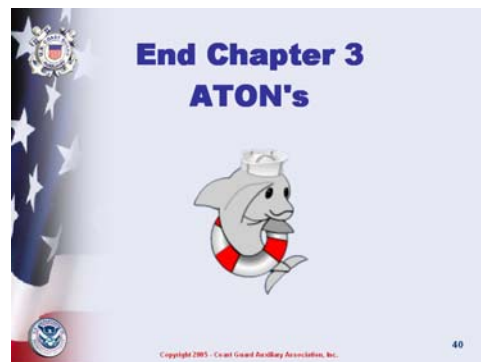
Slide 46



Slide 47



Slide 48



Slide 49