BCM 01-01
CREW FATIGUE

Describe the situations that may cause fatigue.

- Operating in extreme hot or cold weather conditions.
- Eye strain from hours of looking through sea-spray blurred windshields.
- The effort of holding on and maintaining balance.
- Stress.
- Exposure to noise.
- Exposure to the sun.
- Poor physical conditioning.
- Lack of sleep.
- Boredom.

State the crew’s responsibility:

Crewmembers must watch each other’s condition to prevent excessive fatigue from taking its toll. The ability of each member to respond to normal conversation and to complete routine tasks should be observed. Stay Hydrate, Adequate Sleep, and Proper break.

Describe the primary symptoms of fatigue:

- Inability to focus or concentrate/narrowed attention span.
- Mental confusion or judgment error.
- Decreased coordination of motor skills and sensory ability (hearing, seeing).
- Increased irritability.
- Decreased performance.
- Decreased concern for safety.

Describe the prevention measures:

- Adequate rest.
- Appropriate dress for weather conditions.
- Rotate crew duties.
- Provide food and refreshments suitable for conditions.
- Observe other crewmembers for signs of fatigue.
BCM 01-02

MOTION SICKNESS

Explain the causes of motion sickness:

Motion sickness, or seasickness, is nausea and/or vomiting caused by an imbalance between visual images and the portion of the middle ear that senses motion.

List the symptoms of motion sickness.

- Nausea and vomiting.
- Increased salivation.
- Unusual paleness.
- Sweating.
- Drowsiness.
- Overall weakness.
- Stomach discomfort.

List the prevention and medication for motion sickness:

- Stay out of confined spaces.
- Stay above deck in the fresh air.
- Avoid concentrating on the movement of the boat by looking out over the water toward the horizon or shoreline.
- Avoid smoking.

Explain when best to take anti-motion sickness medication:

Crewmembers who are especially susceptible to motion discomfort should take anti-motion medication throughout their watch since they never know when they will be dispatched on a mission. Medication taken just before getting underway may not have its maximum effect during the mission.
IDENTIFY BOAT CREW SURVIVAL VEST EQUIPMENT

Identify each item from the vest and explain its use:

- **Emergency signal mirror:** It can be seen at a great distance from the point of origin.

- **Signal Whistle:** a whistle’s audible sound may be heard up to 1,000 meters/1,100 yards.

- **MK-124:** Both ends of the device produce a signal and each end burns for about 20 seconds. The night end produces a red flare (similar to a road flare) and the day end produces orange smoke.
• **MK-79**: These signals produce a red star display at an altitude of 250-650 feet for a minimum time of 4.5 seconds. Their luminous intensity is about 12,000 candle power.

![MK-79 Diagram]

• **Distress Signal Light**: Distress signal lights emit approximately 50 flashes per minute. At the peak of each flash, the luminous intensity is 100,000 candlepower. Under continuous operation, they will flash for 9 hours, or 18 hours when operated intermittently. On a clear night, the distress signal light has a minimum visual range of five miles.

![Distress Signal Light Diagram]

• **Survival Knife**: It’s a basic tool used to free the crewmember from entangling lines. It is also used to cut material blocking a path in escaping a capsized or sinking boat. It should be a fixed blade design made of corrosion-resistant material. The blade should be checked periodically for sharpness.

![Survival Knife Diagram]
BCM 02-16

List Survival Procedures In Event of boat Capsize.

- State all egress routes.
- Locate nearest exit to open water.
- Inventory survival gear.
- Select best swimmer to exit first carrying line.
- Fist swimmer exits craft, if necessary, with PFD in hand.
- Fist swimmer contacts crew still inside by tapping on the hull of the boat.
- Rest of crew exits one at a time.
- Crew says with the boat until rescued or boat sinks.

BCM 02-17

Open Water Survival Skills

Explain the benefits associated with the different levels of hypothermia protective garments and how they relate to Tables 3-1 and 3-2 of the Rescue and Survival Systems Manual.

- Work Uniform Type III PFD and BC Survival Vest:
  Water Temp 60°F + / Air Temp 30°F +
- Anti-Exposure Suit and BC Survival Vest:
  Water Temp 50° to 60°F / Air Temp 50°F +
- Dry Suit W/ layer 1 and 2, Undergarments, type III PFD, BC Survival Vest, Neoprene Hood:
  Water Temp 50°F and below / Air Temp 50°F and below.

Explain the factors that accelerate the onset of hypothermia:

- Prolonged exposure to cold-water temperatures.
- Sea spray.
- Air temperature.
- Wind chill.

Describe the preventive measures that can be used to increase the chances for successful open water survival including methods of tethering.

- Put on as much warm clothing as possible, making sure to cover head, neck, hands and feet.
- If the hypothermia protective clothing does not have inherent flotation, put on a PFD.
- Avoid entering the water if possible. If it is necessary to jump into the water, hold elbows close to sides, cover nose and mouth with one hand while holding the wrist or elbow firmly with the other hand.
Before entering the water, button up clothing, turn on signal lights (only at night), locate your survival whistle and make any other preparations for rescue.

HELP > Heat Escape Lessening Position.

**Explain risk-based decisions associated with swimming in open water survival situations.**

- Unnecessary swimming will pump out any warm water between the body and the layers of clothing and will increase the rate of body-heat loss. Also, unnecessary movements of arms and legs send warm blood from the inner core to the outer layer of the body resulting in a rapid heat loss.

**BCM 03–01**

**State Common Boat Nomenclature and Terminology.**
BCM 03-03

Boat Characteristics - Boat Construction

Name and define the three basic types of hulls.

- **Displacement hull**: A displacement hull boat pushes away (displaces) water allowing the hull to settle down into the water.

- **Planning hull**: The hull is lifted up onto the surface of the water. The planning hull skims along the surface of the water.

- **Semi-displacement hull**: The semi-displacement hull is a combination of characteristics of the displacement hull and the planning hull. This means that up to a certain power level and speed (power/speed ratio), the hull remains in the displacement mode. Beyond this point, the hull is raised to a partial plane.

**Define keel and name the two keel types:**

- **Keel**: The keel is literally the backbone of the boat. It runs fore and aft along the center bottom of the boat.

- **The bar keel**: It’s popular because its stiffeners (vertical or upright members which increases strength) protects the boat’s hull plating if the boat grounds on a hard bottom.

- **The flat keel**: With its vertical keel and rider plate, is built within the boat’s hull.

**Name and define the most common boat measurements:**

See Boat’s Specs.

**Name the parts of doors and hatches that are used to make them watertight:**

- Scuttles
- Doors
- Gasket
- Knife edge

**Name and define the measurements used to define boat displacement.**

- **General**: Displacement is the weight of a boat and is measured in long tons (2,240 lbs) or pounds.

- **Gross tons**: The entire cubic capacity of a boat expressed in tons of 100 cubic feet.
• **Net tons**: The carrying capacity of a boat expressed in tons of 100 cubic feet. It is calculated by measuring the cubic content of the cargo and passenger spaces.

• **Deadweight tons**: Deadweight is the difference between the light displacement and the maximum loaded displacement of a boat and is expressed in long tons or pounds.

• **Light displacement**: It’s the weight of the boat excluding fuel, water, outfit, cargo, crew, and passengers.

• **Loaded displacement**: It’s the weight of the boat including fuel, water, outfit, cargo, crew, and passengers.

**BCM 03-04**

**Boat Characteristic – Watertight Integrity**

State the watertight compartments of each boat type:

- RBS: 0
- SCP-LE: 0
- MLB: 07

Describe the factors that should be determined before you open watertight doors, hatches, and scuttle covers on a damaged boat.

- Do not open watertight doors, hatches, and scuttle covers on a damaged boat until you determine the following:
  - Flooding did not occur or, if flooded,
  - Further flooding will not occur if you open the closure.

**BCM 03-04**

**Stability**

State the two primary forces that affect a vessel’s stability.

- **Center of gravity**: The center of gravity is the point at which the weight of the boat acts vertically downwards.

- **Buoyancy**: The buoyancy is the upward force of water displaced by the hull.

Define center of gravity and describe how it changes as weight is added or subtracted upon the vessel:

- The center of gravity is the point at which the weight of the boat acts vertically downwards.
• The center of gravity of a boat is fixed for stability and does not shift unless weight is added, subtracted, or shifted. When weight is added, for example when a vessel takes on water, the center of gravity moves toward the added weight. When the weight is removed, the center of gravity moves in the opposite direction.

Define **Buoyancy**:

• The buoyancy is the upward force of water displaced by the hull.

Define **equilibrium and describe how is it changed during rolling, heeling, and listing**:

• When a boat is at rest, the center of buoyancy acting upwards/vertically is below the center of gravity acting downwards. A boat is considered to be in equilibrium.

• **Rolling**: When a boat rolls, the force of the center of gravity will move in the same direction as the roll.

• **Heeling**: Heeling is a temporary leaning, listing is a permanent leaning, and both are different from rolling which is a side-to-side motion.

• **Listing**: If the center of gravity is not on the centerline of the boat, the boat will heel until equilibrium is reached.

**State the two types of stability**:

• **Longitudinal**: Fore and Aft stability tends to balance the boat, preventing it from pitching end-over-End.

• **Transverse**: Athwart ships stability tends to keep the boat from rolling over (capsizing).

**Describe the two types of forces that affect stability**:

• **Static forces** are caused by placement of weight within the hull.

• **Dynamic forces** are caused by actions outside the hull such as wind and waves.

**List the general vessel design features that influence stability**:

• Size and shape of hull.

• Draft of the boat.

• Trim.

• Displacement.

• Freeboard.

• Superstructure.
BCM 03-06

**Identify the Different Parts of a line and the Hitches Used in Line Handling.**

Define lay of line for:
- **Double braid**: Two hollow-braided ropes, one inside the braided line other. The core is made of large single yarns in a slack braid. The cover is also made of large single yarns but in a tight braid that compresses and holds the core. This line is manufactured only from synthetics, and about 50% of the strength is in the core.
- **Plain laid**: Made of three strands, right or left-laid. Most common is right-hand laid.

Define line material:
- **Polypropylene**: A synthetic fiber of about half the strength of nylon, 25% lighter than nylon making it easier to handle, and floats in water.
- **Nylon**: Synthetic fiber of great strength, elasticity, and resistance to weather.
- **Natural Fiber**:

Identify bitter end of line:
- The running end or the free end of a line. It is the end of the line that is worked with.

Identify standing part of line:
- The long unused or belayed end. The remaining part of the line including the end that is not worked.

BCM 04-03

**Assist in Anchoring the Boat**

State the main parts of the anchor:
- Shank
- Fluke.
- Stock.
- Crown.

State the equipment associated with anchoring:
- Screw Pin Shackle.
- Swivel.
- Thimble.
- Chaffing Chain.
- Anchor Shank.
BCM 04-05
Identify the Common Navigation Lights Displayed by Ships and Boats.
1. Identify port side light: Red Light – 112.5°
2. Identify Starboard side light: Green Light – 112.5°
3. Identify Stern light: White – 135°
4. Identify Anchor light: White – 360°
5. Identify Towing lights: Yellow – 135°
6. Identify Sailboat masthead light: White – 225°

BMC 04-06
Identify the Common Sound Signals Used by Ships and boats.
1. Identify short blast: 1 second / moving to starboard ●
2. Identify prolonged blast: 4 to 6 seconds / Altering the course to port side —
3. Identify danger signal: 5 or more short blast / Danger ●●●●●+
4. Identify signal for intention, coming to port (Inland): 2 short blast / ●●
5. Identify whistle signal for sailing vessels during periods of reduced visibility: 1 prolong+2 short/ —●●

BCM 04-07
Identify and Describe Accepted Maritime Distress Signals.
BCM 06-02
IDENTIFY COMMON AIDS TO NAVIGATION USED FOR INLAND AND COATL PILOTING.

Identify a nun buoy and a can buoy:
- **Nun buoy**: Red, even numbers, Pass on starboard Side when returning from sea.
- **Can Buoy**: Green, Odds number, Pass on port side when returning from sea.

Identify a preferred channel buoy and states its purpose:

Identify a **day beacon**: Daybeacons are unlighted fixed structures fitted with a dayboard for daytime identification.

BCM 06-07
COMPUTE TIME, SPEED, AND DISTANCE.

State the 3 – Minute and 6 – Minute Rules:
For Every 3 Minutes at a speed of 25 Knots you will go 2500 yards.

BCM 07-13
PREPARE THE PORTABLE PUMP FOR OPERATION, START, AND OBTAIN SUCTION.

P-6 Dewatering Pump:
- HP Honda.
- 250 GPM.
- 10 ft Suction Hose.
- 20 ft Discharge Hose.
- 2.5 Gallon Fuel Tank (4-6 hrs).