

I. SURVIVAL AND METHODS OF LEAVING THE SHIP AT SEA.

A. Problems of Survival at Sea:

During WWII, statistics show that the US Navy alone lost almost 700 ships of all types. Additionally, thousands of merchant ships of the other nations sank and their crews were left to founder in the water. During peacetime, an average of two hundred ships and hundreds of lives are lost every year in disasters at sea. These casualties can be attributed to the following problems of survival at sea.

1. Inadequate training in survival methods.
2. Carelessness of the individual.
3. Ignorance.
4. Giving up too soon or managing too poorly.
5. Unpreparedness.

B. Methods of Leaving the ship:

1. **Preparations** – there are few important things to do if time permits before going over the side.

- a) Try to find out the distance and direction of the nearest friendly land.
- b) See to it, that your life saving gear is in first class condition. The clothes you wear and the gear you take with you depends upon whether you are in a hot or cold climate.

2. Abandoning the Ship in Cold Climate:

a) Clothing:

- 1) Long woolen underwear and woolen socks to keep body warm.
- 2) Wind proof jacket to protect shoulder and arms.
- 3) Helmet or watch cap to keep head warm and water out.
- 4) Garments that can be slipped off easily.
- 5) Gloves to keep hands warm and to prevent burning them on lines.

b) What to Take:

- 1) Flashlight with a transparent rubber water sheath or pin on flashlight.
- 2) Police whistle.
- 3) Knife.
- 4) A six foot line tied under arm with a snap on free end to secure self to line one rescuing ship.
- 5) Wallet and money belt.

c) Actions before leaving the ship:

- 1) If possible, drink hot tea or coffee to ward off effect of cold water.
- 2) Test lifejacket valves and inflating tubes.
- 3) Stimulate circulation by deep and rapid breathing and by flexing arms and knees, to not over exert.

3. Abandoning ship in Hot Climate:

- a) Wear a shirt, trouser and tennis shoes to protect you from the effect of sun and salt water.
- b) Take the same articles with you and follow the same routine before leaving ship as described for abandoning ship in cold climate.

4. **Getting Over the Side:**

- a) Obey every command.
- b) Wear your lifejacket and fasten it securely.
- c) If possible, lower yourself by ladder or lines. If you jump, jump feet first, protecting your face with your hand.
- d) Avoid debris in the water.
- e) If possible, jump to windward from the lowest part of the ship or from an overhang structure. If propellers are still turning, leave by the bow.
- f) If the water is covered with burning oil, discard your life jacket and swim under water, swim windward.
- g) To protect yourself from underwater explosion, swim away from the ship for at least one hundred (100) yards or swim aboard a boat raft or wreckage. If none of this are available; swim or lie flat on your back.

5. **In the Water:**

- a) Tie raft and net together. It is easier for searchers to find a large group of survivors than two or three adrift separately.
- b) Able-bodied men stay out of crowded raft and hang on the side. Ropes on raft should be sufficiently loose to permit an easy grasp.
- c) If the sea is rough, breath as in swimming, inhaling through the mouth, exhaling through the nose as a wave washes over you.
- d) Do not try to swim if raft or net is available. Save your strength.
- e) Keep kicking you legs and moving all parts of your body to prevent numbness which will strike in 30 seconds of inactivity in cold water.
- f) Beware of drowsiness, which often comes on between 15 to 45 minutes after you enter the water.
- g) Shivering saps strength quickly. Deep rapid breathing and moving the arms and legs will usually stop it.
- h) Non-swimmers are most likely to lose their heads. Encourage them and keep talking to them calmly and quietly.
- i) Stay calm.

II. **STANDARD ABOANSHIP EQUIPMENT AND SUPPLIES.**

A. **Introduction:**

While much of abandonment equipment have been designed for wartime use when rescue is complicated by the presence of enemy submarines and planes, it continues to be of use in peacetime. Heavy seas and weather reefs, icebergs, fog and fire still endanger the lives of seamen and make abandonment equipment vital in peacetime as well as in war.

Every item of abandonment gear has been placed on aboardship as a result of research based on the experience of survivors. The size and amount of equipment supplied are limited by strict economy of weight and space since naval vessels are limited primarily for combat. The combat equipment therefore is given first consideration as far as space and weight are concerned. Based on this restrictions and the fact that it is expected that survivors will be picked up fairly soon by other naval vessels, the equipment has been limited to the essentials for survival for a short period of time.

B. Objectives of Men Cast Adrift:

- 1) To survive.
- 2) To keep afloat
- 3) To attract the attention of rescuers.

C. Gears Needed for survival:

- 1) To survive:

a) **Rations**

(1) To provide about 1,000 calories per man per day rations are packed in metal container.

(2) Each container holds sufficient rations for 25 men per day.

(3) The number of containers allowed provides a total of 5 days rations for each man on the liferaft's maximum carrying capacity.

b) **Water**

(1) Water breakers contain sufficient water to provide a minimum total allowance of one quart of water to each man.

(2) Two drinking cups marked in ounces for measuring are provided.

(3) Each liferaft is furnished with three gallons of water breakers full and tested which must be changed weekly.

c) **Fishing Kit** – must be designed for deep sea angling and enclosed in a waterproof can with key opening and contains:

- | | |
|-------------------------------|-------------------------------------|
| (1) Gloves; | (4) Dip net; |
| (2) Sinkers; | (5) Bait; and |
| (3) Assortment of fishing rig | (6) Knife that has positive buoyant |

d) **Medical Kit** – contains medical equipment for treatment and first aid.

2. Gears to Keep Survivors Afloat:

a) **Life preservers** – a belt or jacket of buoyant or inflatable material worn to keep a man afloat.

Following are the types:

(1) **Kapok Life Preservers** – a water resistant fiber stuff packed into lifejackets making them buoyant. It has two types:

(a) **Jacket type** – fitted with tapes for adjustment. A leg strap prevents the jacket from riding up on the wearer while in the water. A web body strap facilitates lifting the wearer from the water. It can also be used to attach to life floats of the other men in the water.

(b) **Yoke type** – is worn around the neck. It has pads extending down the front of the body but has not covering for the back. It is primarily used by pack carrying troops in amphibious operations.

(2) **Vest Type Preservers:**

(a) Consist of two separate independent rubberized compartment of equal capacity.

(b) Each compartment has a CO₂ inflation mechanism and an oral inflation valve.

(c) It is equipped with a waist and chest straps to hold the preserver in place when inflated and give a ready hold for assisting survivors out of the water and serve as a means of attachment to a life float or line.

(d) It is intended primarily for use by personnel in confined spaces where wearing of the kapok preserver is impractical

b) **Liferaft** – a float constructed either with a metallic tube covered with cork and canvass, or made of balsa wood, fiber glass or other, suitable materials. It has two types:

(1) **Elliptical**

(a) Solid and of circular cross-section.

(b) Each float consists of a buoyant portion from a platform and suspended to sustain the weight of the passengers.

(c) The buoyant portion of the float consists of strips of balsa wood cut in varying lengths and assembled in lay which are joined together with a waterproof glue.

(d) Exterior of the float proper is covered with helical winding of canvass with a waterproof coating.

(e) Function of the float is to provide a support for survivors and their equipment. Paddles are also provided.

(f) Already replaced by the rectangular float.

(2) **Rectangular Float** – same in construction as the elliptical design but square in shape. It replaced the elliptical design.

c) **Floater Nets**

- (1) Used to support men in the water.
- (2) A buoyant apparatus composed of individual floats either hand cellular rubber of water repellent, canvas covered balsa wood and strung together by means of a line to form a net.
- (3) The cellular rubber floats are cylindrical in shape and 5 inches in diameter and 10 ½ inches long. Length wise through its float is a round hole through which the lines are strung.
- (4) The net is approximately 10 feet wide and 12 feet long which can support 25 men.
- (5) Advantageous than the life floats because of lighter weight and requires less stowage space.

d) **Inflatable Boats (CO2 inflated)** – manufactured from cotton fabrics that is coated with neoprene (synthetic rubber compound). It has two types:

(1) **17 – Person Boat**

- (a) Has a single cross – tube installed amidship with a valve inflation and deflation system operated by hand pumps.
- (b) A removable two compartments, inflammable floor make a boat rigid; it also provides a walking surface and if necessary can be used as a liferaft when removed from the boat. The floor is inflated and deflated by hand pump.
- (c) Provided with a paulin, blue on one side and yellow on the other for use as canopy, camouflage, cover, rain catcher or as a sail. The oars may be rigged as mast.
- (d) To inflate the boat, the CO2 release cable is pulled by hand.

(2) **25 – Person Mark 1:**

- (a) The main tube is divided into two separate compartments by a vertical bulkhead.
- (b) Fitted with two cross-tubes, one lower and one upper and each fitted with CO2 cylinders.
- (c) When the CO2 release cable for the lower compartment is pulled, the compartment inflates and unfolds. Unfolding of the lower tube automatically opens the valve for the upper tube and the upper compartment inflates.
- (d) These boats are stowed in the racks and are launched in the same way as the personal boat.

D. **Signaling Equipment:**

1. **Signaling Mirror.**

- a) Most effective and most frequent used signaling device.

- b) It reflects sunlight for a distance of 8 to 10 miles and is designed to focus definitely on a moving object such as planes.
- c) Reflections can be seen at distance three to five times as great as those at which liferaft can be sighted at sea.
- d) On a clear sunny day, the mirror will reflect the equivalent of 8,000,000 candle power.
- e) There is a small round window of clear glass in the center of the mirror for sighting.
- f) When the mirror is aimed at the sun, a red dot is reflected.

2. **Pyrotechnic Distress Signals** – are chemicals, ammunition of fire works which produce smoke or lights of various colors.

a) **Mark 2 Distress Signal:**

- (1) One of the most valuable and easy to use.
- (2) It emits dense cloud of fire-orange smoke for a period of approximately 18 seconds.
- (3) It can be seen at a distance of 7 to 8 miles under favorable condition.
- (4) The signal itself is encased in metal cylinder, one end of which is closed by a soldered cap with pull ring. The pull ring is large enough for a finger to be put through it for firing.
- (5) Moisture will not hurt the signal, and the cylinder is constructed so that it can be held with the bare hand when it is burning.

b) **Mark 13 Smoke Hand Signal (a recent development)**

- (1) To ignite this signal, tear off the sealing tape from around the end of the cylinder and remove the paper cap.
- (2) Bring the pull ring down over the rim of the can and press down, using the ring as a lever to break the seal. Give the ring a quick pull.
- (3) It will come out of the can as it does, will ignite the smoke mixtures.
- (4) Smoke will start pouring out immediately. Hold the signal at arms length and at an angle of 30 degrees from horizontal.
- (5) Care must be taken that the contents of the can do not drop on the water.

c) **Very's Signal:**

- (1) Named for its own designer **LT SAMUEL VERY**.
- (2) Very's signal cartridges are supplied in three (3) colors with the characteristics of each color as follows.

(a) **Red Star** – burns for seven (7) seconds and produces a RED light of 300 candle-power. The closing wad is corrugated.

(b) **White Star** – burns for six (6) seconds which produces 250 candle-power white light. The closing wad has a small cone in the center.

(c) **Green Star** – burns for five (5) seconds and produces a green light of 600 candle-power. The closing wad is smooth.

III. POISONOUS AND DANGEROUS AQUATIC ANIMAL

A. SHARKS:

1. Sharks to attack men. The danger of being attacked by sharks is greatly exaggerated in the minds of most people. Whenever there is any hazard, it all depends in the locality and on the condition of a man. In general sharks are timid creatures.

2. Sharks live in almost every large body of water and at the mouth of large rivers. They prefer warmer waters usually those with temperature above 65 degrees Fahrenheit.

3. The four species, that has account for the greatest number of human casualties are the white, tiger, blue, and the hammerhead sharks. The most dangerous are usually from 8 to 18 feet in length.

4. Sharks are most dangerous close to land or in shallow water and they are usually more active at dusk.

5. Most authorities agree on the following statement:

a) Sharks are curious and will investigate any object in the water, but are likely to attack only the dead, or wounded and bleeding. Blood in the water attracts and excites them through their sense of smell and increase the possibility of attack.

b) Men on the raft are relatively safe unless they dangle their hands or feet in the water.

c) Sharks are attracted by shiny objects on the water or by weak, fluttering movements and are repelled by strong, regular movement and loud strange noise.

d) Stay with your companions, as group of clothed men bounded together in the water is safe and less subject to attack than a single swimmer.

6. Preventive Measures Against Sharks:

a) Do not shine a light under the water at night.

b) Keep your clothing and shoes on, but don't carry white cloth since which cloth seems to attracts sharks.

c) Carry a knife and keep a lookout for sharks.

d) Stay as quiet as possible, float to save energy, if it is necessary to swim, use strong regular strokes, avoid frantic irregular movements.

e) When swimming alone, avoid school of fish, water areas where blood or dead fish are in evidence.

f) If sharks swim around you, try to get inside of its turning circle, if you get close enough hit or strike the shark with the knife. Shark side is tough, so try to stab them in the gills.

g) Do not swim madly toward the shore or boat, take it easy, don't splash, swim slowly, do not panic, save your energy.

h) If attacked put a fight, by this action you may frighten the shark away.

i) If a single shark threatens at close range; use strong regular movement of swimming; try feinting toward the shark. Do not swim directly into the side. Out maneuver it, make loud sounds by slapping the surface of water with cupped hands; and use a knife at close quarter.

j) If a group is threatened or attacked by a shark, bunch together and form a tight circle, face toward so as to see an approaching shark. If the sea is rough, tie yourself together, ward off attack by kicking or stiff arming the shark.

7. When aboard a liferaft, do not flash from raft when sharks are nearby, do not clean the fish in the water or throw them over board when sharks are around.

a) Do not provoke a shark by trailing your hands and feet in the water.

b) Look for a shark around and under the raft before going into the water.

c) Fire a pistol, if you have one, above a shark to frighten it away.

d) If a shark attacks a victim, the most important measure is to stop the bleeding quickly, help the victim into the raft or ashore as soon as possible.

B. BARRACUDA:

It is found in most tropical seas, usually along coral, reefs, and near shoal water. Barracuda has been known to attack man. They are seldom encountered in the open seas. It is dangerous in murky water than in clear water. Barracuda has multiple rows of teeth.

C. JELLY FISH AND PORTUGUESE MEN – OF – WAR:

1. This marine animal has long stinging tentacles that produce painful sting and severe swelling which will last several hours. The greatest danger is not from the sting but from the fact they may cause a swimmer to develop cramps, panic, and lose energy which may result in drowning. Clothing should be worn as a protection while swimming.

2. If stung, make every effort to relax. When near a source of medical supply, a prompt application of ammonia will relieve the pain.

D. STINGRAY:

1. Stingrays are flat fish with powerful venomous tail wounds likely to become infected.

2. They are frequently found on sand or mud bottoms. The sting of a large ray may be fatal. A small one can hospitalize a man.

E. SCORPION FISH:

1. Its venomous spines may produce a sting which causes severe pain and swelling followed by weakness.

2. This fish is encountered among coral heads. The flesh of this fish is edible, but don't pick up those fish or take them off a hook with bare hands.

F. SEA ANEMONES AND SEA URCHINS:

1. Anemones may produce an annoying sting. They are small plant like creatures which cling to rocks and reefs and in tidal pools.

2. Sea Urchins have long poisonous needle like spines.

G. THE MORAYS AND LOGNER EEL:

These are snake like fish inhabiting coral reefs. Normally they bite only when touched.

H. SHEELS:

The sharp shells of oysters and other mollusks, corals and starfish cause wounds which will heal slowly. You are almost sure to be cut if you try to walk or swim without shoes through a coral surface.

IV. OCEAN SURVIVAL:

A. FACTORS FOR OCEAN SURVIVAL:

1. The rations and equipment you have with you.
2. The use you make of the equipment.
3. The degree of skill, ingenuity and resourcefulness you deploy.
4. The training you have.

B. SURVIVAL WITHOUT FOOD AND WATER:

Your chance of survival without food and water depends on your resourcefulness and foresight to make use of the available equipment when adrift. The following are guidelines for survival and based on records told by survivors.

1. Without water, a man in good health will live from 8 to 10 days.
2. With water and in good health, you can live without food for as long as 21 days.
3. Survivors have known to live for 10 days or more on as little as 2 or 3 ounces of water per day without bodily harm.
4. If you lack water do not eat. Your body uses water in digesting and assimilating food.
5. Abstain from both food and water for the first 24 hrs. after that ration what you have, and when that is gone, live off your body fat and protein.
6. When fat and protein is converted to energy, water is released by the tissues and will help maintain kidney activity.
7. Keep your body protected as much as possible from sun and wind.
8. Do not use heavy clothing in warm weather.
9. Strenuous exercise and worry induce sweating with subsequent loss of water.
10. By relaxing the mind and body and guarding against exposure to extreme temperatures, you can live longer on your stored energy.
11. Do not drink sea water. Rain, ice and the body fluids of animals are the only sources of water.
12. Remain in the water for hours at a time to prevent evaporation of water through the skin and to let the body absorb enough water to increase kidney activity.
13. The blood of birds and the body fluids of fish are drinkable and nourishing.

14. Collect rain water in any available receptacle, using clothing, parachute or sails.
15. Device methods before there is an actual need.
16. In case of heavy rain, drink all you can hold when water is plentiful.
17. Fishes are good to eat, cooked or raw. Device any means of catching them.

C. INDICATIONS OF LAND:

1. Flock of Birds:

- a) All tropical sea birds stay fairly close to land and to their breeding land.
- b) The direction of flight of these sea birds indicate the direction of land.

2. Clouds:

- a) Fixed cumulus clouds in a clear sky are likely to have been formed over high or mountainous land.
- b) Stationary clouds specially where clouds are passing by is an indication that land lies beneath it beyond the horizon.
- c) A greenish tint in the sky or on the other side of a cloud is caused by reflection of sunlight from shallow water or coral reef.
- d) The reflection of light from any surface such as sand, shoal water, ice or snow may be reflected in the sky or on clouds is also an indicating of land.

3. Drifting wood or vegetation is also an indication of land.

D. MORALE FACTORS OF SURVIVAL:

1. High morale will help you survive; without it you may lost your hope and die.
2. Do not let your thoughts and imagination become your greatest enemy.
3. Keep fishing and experimenting to the limit, for activity is the best cure for depression.
4. Be cheerful and think of your will to survive.
5. Cooperate with the group and obey your leaders.

E. SURVIVAL HINTS:

1. Preparation for survival

- a) Be physically fit.
- b) Be dressed and equipped for survival.
- c) Know the fundamental woodcraft principles and to some extent apply them.
- d) Have at least a limited skill in a number of outdoor techniques.

2. Be prepared with emergency equipment such as:

- a) Strong pocket or sheath knife.
- b) Waterproof matches in a waterproof container.
- c) A small waterproof compass.
- d) A pencil flashlight.

- e) A fishing kit.
- f) A mosquito head net for protection from insects.
- g) Signaling mirror, dye markers, distress signals, etc.

3. **Think before acting:**

- a) If in a strange land, do not roam around and in case there is a chance of rescue.
- b) If in a plane crash and in enemy territory, salvage anything that can be of value to you before abandoning the plane.
- c) Take in food only if water is available.
- d) Determine a course to follow and travel slowly.
- e) start looking for water and food before you become tired.

4. **Seeking Food (Technique):**

- a) All foods are either plant or animal, and are interrelated and distributed according to definite laws. Animal life is usually scarce where plant life is scarce.
- b) Vegetative regions of the world having the same climate and appearance will contain similar plants and animals.

5. **Testing Food:**

- a) Never eat large quantities of strange food.
- b) Food eaten by rabbits, mice, bears, squirrels and monkeys are usually safe to eat.
- c) Unknown foods with milky juices should not be eaten.

6. **List of Edible Animals:**

- a) Land animals which are easily recognized by their covering of hair.
- b) All birds and birds eggs.
- c) Amphibious and reptiles such as:
 - 1) Frogs
 - 2) Salamanders
 - 3) Toads
 - 4) Snakes
 - 5) Lizards
 - 6) Turtle