

**Report Date:** 30 Apr 2012

**Summary Report for Individual Task  
551-8ST-1021  
Perform Water Survival Techniques and Procedures  
Status: Approved**

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DISTRIBUTION RESTRICTION: Approved for public release; distribution is unlimited.

DESTRUCTION NOTICE: None

**Condition:** As crewmember onboard an Army vessel, you are required to perform water survival techniques and procedures.

**Standard:** The Soldier will perform all of the water survival techniques and procedures according with instructions and applicable references without any injury to personnel.

**Special Condition:** A crewmember enters or falls into the water. Special Conditions (if any): The Soldier may or may not fall into cold water. The Soldier may or may not be wearing protective equipment.

**Special Standards:** None

**Special Equipment:**

**MOPP:**

|                        |
|------------------------|
| <b>Task Statements</b> |
|------------------------|

**Cue:** None

|               |
|---------------|
| <b>DANGER</b> |
| None          |

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|--|
| <b>WARNING</b>                               |
| Adhere to all warnings during this training. |

|  |
|--|
| <b>CAUTION</b>                               |
| Adhere to all cautions during this training. |

**Remarks:** Ensure a certified life guard, immersion suite, cold water survival life jackets and a work vest are available.

**Notes:** Adhere to all safety rules and policies.

## Performance Steps

1. Wear protective gear.

Note: Commanders and vessel masters are responsible for verifying compliance with the hypothermia protective clothing guidelines.

NOTE: Do NOT wear a Personal Flotation Device (PFD) over an anti-exposure coverall or survival suit because these devices are inherently buoyant. Although a PFD will improve chances for survival during prolonged periods because it provides improved flotation, the additional buoyancy creates problems for the wearer attempting to leave capsized watercraft.

a. Wear anti-exposure coveralls, also called a deck suit or a work suit. (Figure 551-8ST1021\_01)



Figure 551-8ST-1021\_01 (Anti-Exposure Coveralls)

(1) Protect yourself from hypothermia by wearing anti-exposure coveralls anytime you are operating in an area where the water temperature is less than 59 degrees Fahrenheit, as it provides protection from exposure to cold water, wind, and spray. This is required of all watercraft crewmembers.

Note: Wear the anti-exposure coverall when watercraft crewmembers may be exposed to intermittent spray.

(2) Select the anti-exposure coveralls when you require greater freedom of movement and the mission and environment are less hostile.

(3) Don anti-exposure coveralls in the same fashion as standard coveralls.

(4) Check fit.

(a) The anti-exposure coverall, type III PFDs are NOT universally sized.

(b) Two or three different sizes are required to fit adults properly.

(5) Carry waterproof gloves to use with the anti-exposure coveralls, as gloves provide extra protection.

(6) Use as a substitute for the work-type preserver, if needed.

b. Wear an immersion suit, also called an exposure suit, when abandoning ship. (Figure 551-8ST-1021\_02)

Note: The Adult Universal survival suit fits most persons (weighing between 110 and 330 pounds). Other sizes are available. Immersion suits are kept in color coded bags according to size. Suits should be marked according to size.

" A yellow bag holds the child universal immersion suit. This size fits people that weigh between 44 and 110 pounds with a maximum height of 59 inches tall (4 feet, nine inches).

" A red bag holds the adult small universal immersion suit. This size fits people that weigh between 110 and 250 pounds with a maximum height of 68 inches (5 feet, six and a half inches).

" An orange bag holds the adult universal survival suit. It fits most people that weigh between 110 and 330 pounds and are shorter than 75" in height (6 feet, two and a half inches).

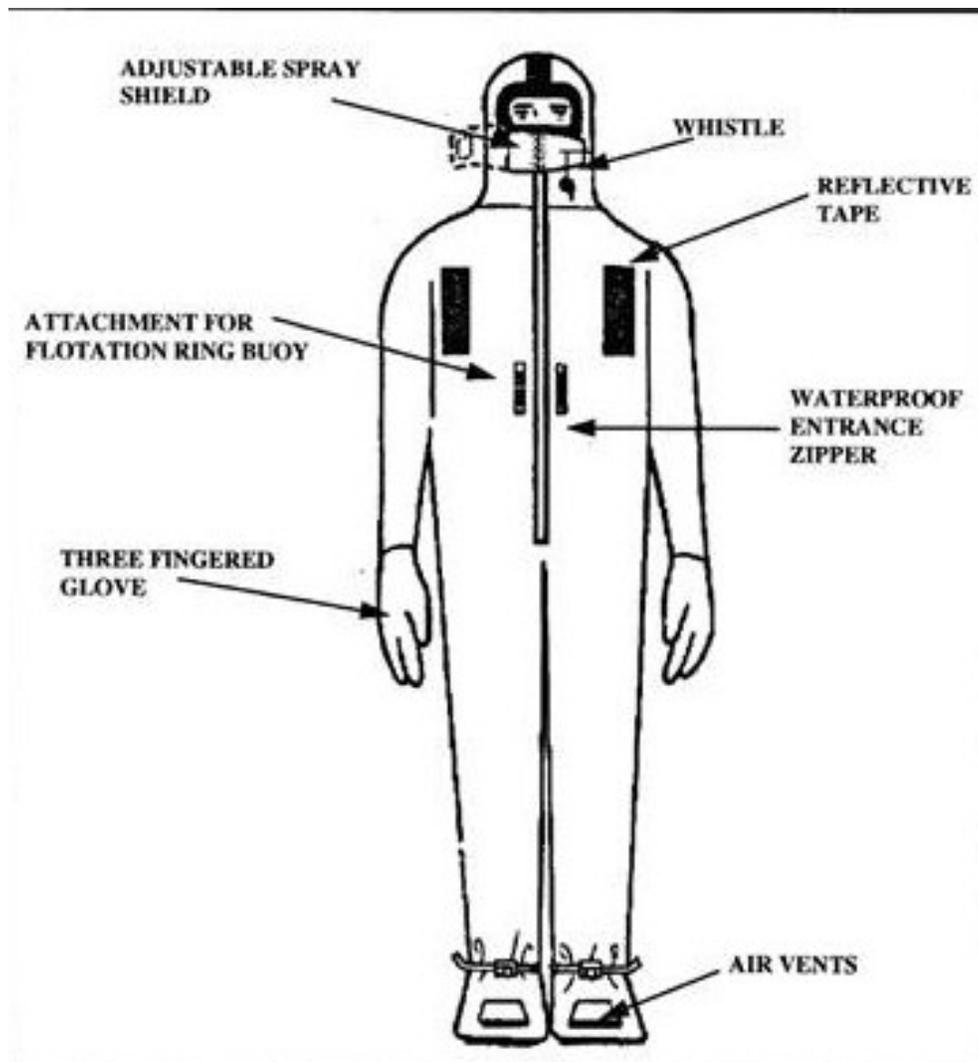


Figure 551-8ST-1021\_02 (Immersion Suit)

(1) Remove the suit from the stowage bag by jerking sharply on the carrying bag.

(2) Verify that a personal distress signal light and a whistle are attached to the left breast pocket.

(3) Don the suit in the same fashion as donning coveralls.

(4) Don the hood.

(5) Zip up the suit.

(6) Close the zipper completely.

(7) Close the spray shield.

## CAUTION

Caution: Take extreme caution to avoid sharp, protruding objects that may snag or tear the suit when wearing the immersion suit.

NOTE: While wearing an immersion suit, you will float horizontally either face up or face down in rough seas due to the buoyancy provided to the lower torso. Use additional flotation, such as the inflatable collar provided with the suit to assure face up flotation.

The thermal qualities of the fabric/foam laminate will keep survivors warm whether they are wet or dry.

(8) Inflate the collar for extra flotation.

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2. Enter the water.

a. Hold elbows close to sides.

b. Cover your nose and mouth with one hand while holding the wrist or elbow firmly with the other hand.

Note: Avoid entering the water, if possible. If you must enter the water, however, remember that the best insurance for water survival is wearing all required personal protective equipment.

3. Implement drownproofing techniques.

a. Use the drownproofing technique in warm water when you are NOT wearing a PFD.

(1) Fill your lungs with a good breath of air and float vertically with the back of your head just breaking the surface of the water. (Figure 551-8ST-1021\_03)



Figure 551-8ST-1021\_03 (Drownproofing Technique Image 1)

(2) Relax and allow your head to submerge between breaths.

(3) Let your arms float slowly towards the surface, with elbows bent, until your hands are in front of your shoulders. (Figure 551-8ST-1021\_04)



Figure 551-8ST-1021\_04 (Drownproofing Technique Image 2)

(4) Using a steady movement, press downward and back with your hands until your mouth clears the water.  
(Figure 551-8ST-1021\_05)

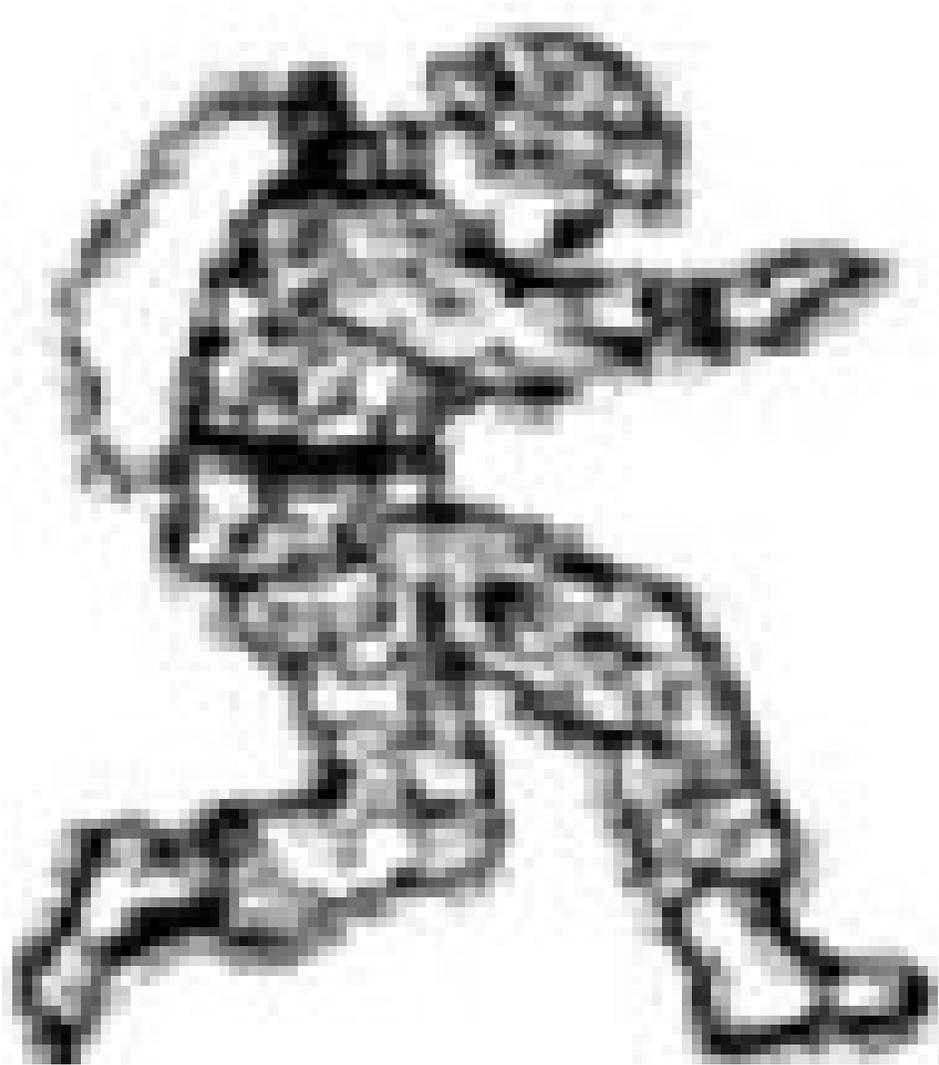


Figure 551-8ST-1021\_05 (Drownproofing Technique Image 3)

(5) Breathe out and inhale as soon as your mouth is above the surface. (Figure 551-8ST-1021\_06)



Figure 551-8ST-1021\_06 (Drownproofing Technique Image 4)

(6) Repeat every 10 to 12 seconds.

(7) Choose the leg position that you find the most comfortable; use a scissors kick with the legs, or arms and legs together if you find that this position helps you to maintain balance.

(8) Limit any other movements as much as possible to conserve energy.

Note: If the stroke is too energetic, you will come further out of the water than is necessary and go down too far as you drop back. Try to achieve a gentle, easy action. The less effort you make the better.

b. Remember to raise your head only far enough out of the water to get a breath.

(1) Tilt your head slightly forward when it emerges. This causes the water to fall away from your face.

(2) Open your mouth wide when you inhale, so you can get as much air as possible.

(3) Exhale and inhale as quickly as possible through your mouth.

(4) Keep your lungs full of air as much of the time as possible.

(5) Take another breath before you feel an urgent need for one.

Note: Remember, your lungs are built-in buoyancy tanks! When full, they hold around four liters of air, which equals four kilograms (nearly nine pounds) of additional buoyancy. On land, you breathe in and out regularly without even noticing. For drownproofing and for swimming it is important to change the way you breathe.

4. Create a floatation device using your trousers.

a. Remove your trousers. (Figure 551-8ST-1021\_07)



Figure 551-8ST-1021\_07 (Trousers Removal)

(1) Remove your boots one at a time.

(2) Tie the boots' laces together.

(3) Drape the boots around your neck.

(4) Remove your pants.

b. Create a sling from the trousers. (Figure 551-8ST-1021\_08)

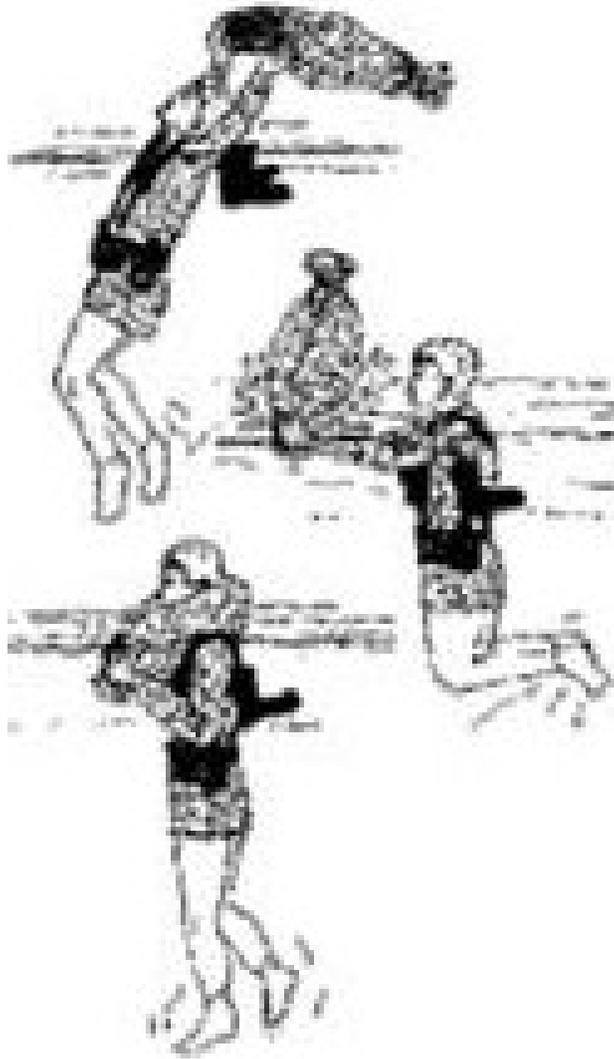


Figure 551-8ST-1021\_08 (Trouser Sling)

- (1) Tie the trouser legs together.
- (2) Button the fly.
- (3) Use your thumbs and little fingers to hold the waistband in a circular opening on the surface of the water behind the head.
- (4) Kick vigorously to stay afloat.
- (5) Sling the trousers over your head.
- (6) Scoop in the air that is trapped when the open end of the trousers (the waistband) hits the water.
- (7) Gather and hold the waistband together.
- (8) Slip the heads between the trouser legs.
- (9) Place the knot behind the neck.
- (10) Lie back and float. (Figure 551-8ST-1021\_09)



Figure 551-8ST-1021\_09 (Trouser Sling)

c. Create a trouser floatation device using the splash method. (Figure 551-8ST-1021\_10)

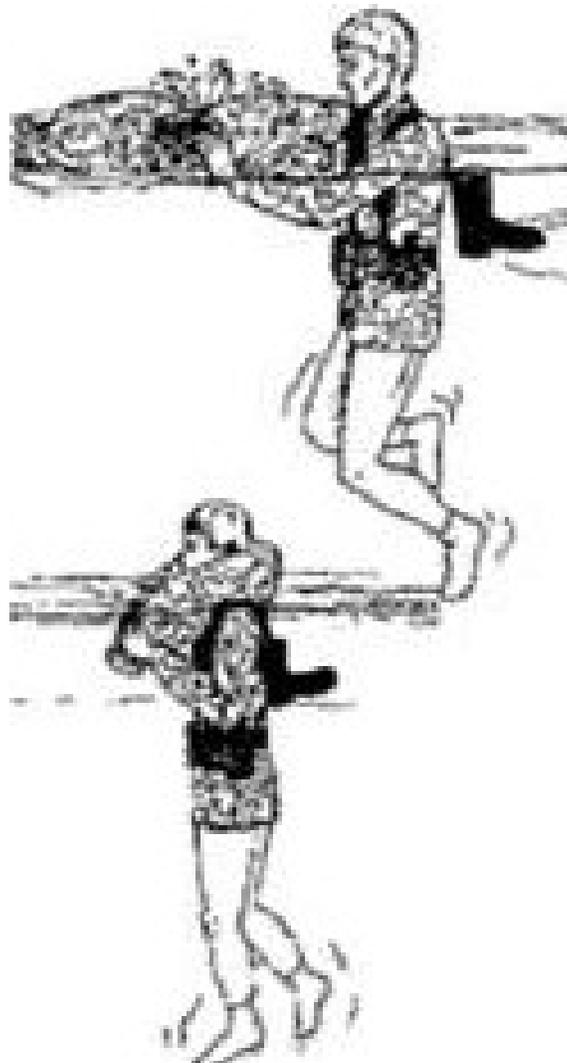


Figure 551-8ST-1021\_10 (Splash Method)

- (1) Tie the trouser legs together.
- (2) Button the fly.
- (3) Put the knot at the back of the neck.
- (4) Hold the waistband open underwater with one hand.
- (5) Use the scissor or frog kick to stay afloat.
- (6) Using a downward motion with your hand, splash water and air toward the waistband opening.
- (7) Stop the stroke at the opening.
- (8) Gather and hold the waistband together.

Note: Gathering and holding the waistband together forces a current of water and air bubbles into the trousers straightens the pant legs. The water passes through leaving air trapped at the ends.

- (9) Float.

5. Implement cold water survival techniques.

- a. Recognize the four factors that determine whether an individual will survive in cold-water survival.

- (1) Water temperature (Figure 551-8ST-1021\_11)
- (2) Physical condition of the survivor (Figure 551-8ST-1021\_12)
- (3) Action taken by the survivor
- (4) Other environmental factors

Note: Swimming typically reduces a person's survival chances due to the rapid loss of body heat.

NOTE: Time is critical when forced to enter cold water. The loss of body heat is one of the greatest dangers to survival. Critical factors that increase the threat of hypothermia and other cold water injuries include:

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

| Water Temperature   | Exhaustion or Unconsciousness in | Expected Survival Time |
|---------------------|----------------------------------|------------------------|
| 70–80° F (21–27° C) | 3–12 hours                       | 3 hours – indefinitely |
| 60–70° F (16–21° C) | 2–7 hours                        | 2–40 hours             |
| 50–60° F (10–16° C) | 1–2 hours                        | 1–6 hours              |
| 40–50° F (4–10° C)  | 30–60 minutes                    | 1–3 hours              |
| 32.5–40° F (0–4° C) | 15–30 minutes                    | 30–90 minutes          |
| <32° F (<0° C)      | Under 15 minutes                 | Under 15–45 minutes    |

Figure 551-8ST-1021\_11 (Expected Survival Time in Cold water Table)

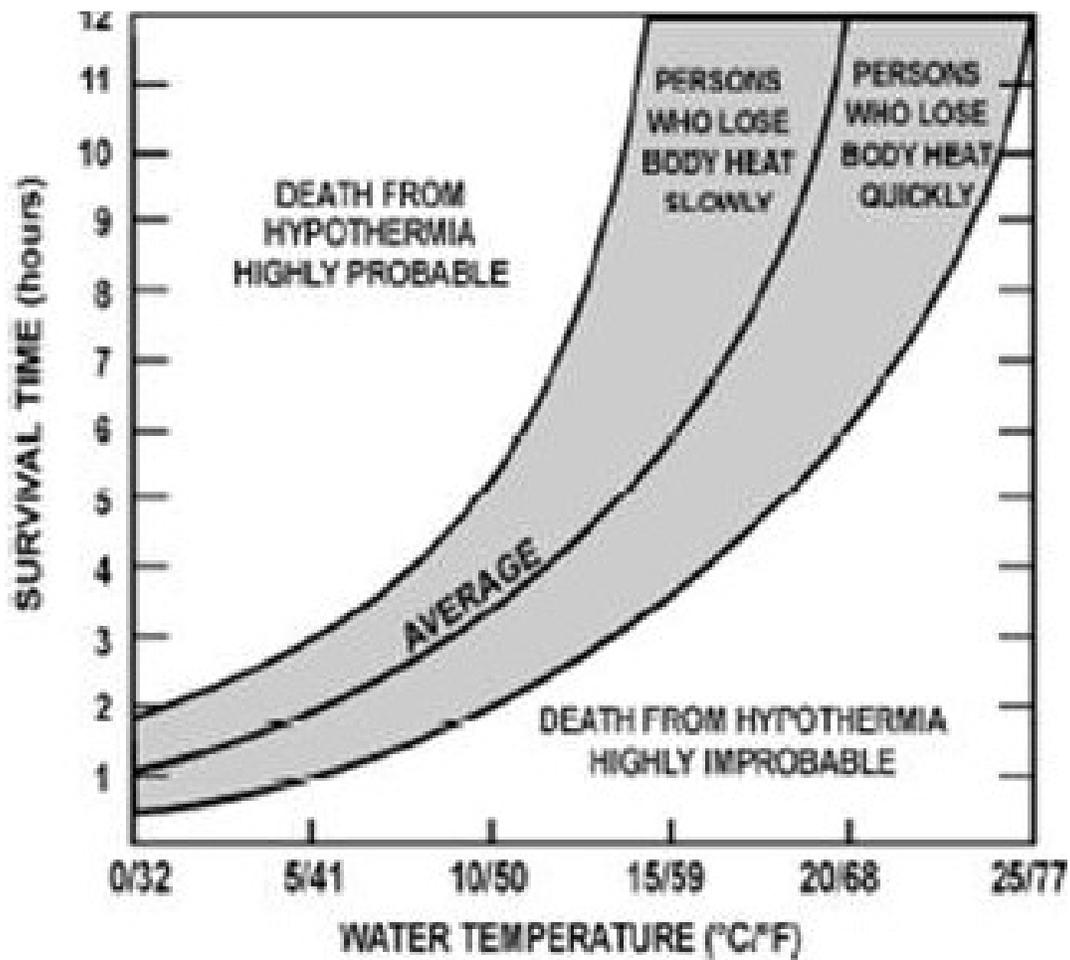


Figure 551-8ST-1021\_12 (Water Chill and Hypothermia Graph)

b. Take preventive measures to increase the chances of surviving in cold water.

- (1) Put on as much warm clothing as possible before entering the water. Cover your head, neck, hands, and feet.
- (2) Don a personal flotation device (PFD) if the hypothermia protective clothing lacks inherent flotation.
- (3) Button up all clothing.

(4) Turn on signal lights if it is nighttime.

(5) Locate your survival whistle.

(6) Make any other rescue preparations necessary.

c. Take measures to survive the cold water immersion.

(1) Orient yourself to the surrounding area immediately.

(a) Locate the sinking boat.

(b) Locate floating objects.

(c) Locate other survivors.

(2) Get out of the water, as soon as possible.

(a) Board a lifeboat raft, overturned boat (if floating), or other floating platform to reduce immersion time.

Note: Body heat is lost much faster in water than in the air.

NOTE: Water soaking drastically reduces the effectiveness of the insulation worn. It is important that you remain shielded from the wind to avoid a wind-chill effect.

(b) Use a canvas cover or tarpaulin as a shield from the cold.

(c) Huddle close to the other craft occupants to conserve body heat, if needed.

(3) Avoid swimming unless you must swim to reach a fellow survivor or a floating object that you can grasp or climb onto to get out of the water.

Note: 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. In addition, 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.

NOTE: When assuming a Heat Escape Lessening Position (HELP), wearing a PFD is required in order to maintain the positions.

(4) Assume the Heat Escape Lessening Position (HELP) if you are immersed in cold water.

(a) Float with your legs together, elbows close to your side, and arms folded across the front of the PFD

(b) Try to keep your head and neck out of the water.

Note: The head and neck are high heat loss areas, so you must keep them out of cold water. This is why it is even more important to wear a PFD in cold water.

(5) Bring your legs together tightly, hold your arms tightly to your sides, and keep your head back if you are wearing the Type III PFD or if the HELP position turns your face down.

(6) Huddle closely to others in the water making as much body contact as possible, is a third heat conserving position.

(7) Avoid drownproofing in cold water.

(8) Tread the water only as much as necessary to keep your head out of the water if you are not wearing a PFD.

(9) Keep a positive attitude about survival and rescue. This will extend your survival time until rescue arrives.

(Asterisks indicates a leader performance step.)

**Evaluation Preparation:** Ensure that all information, references and equipment required to perform the task are available. Use the FM and the evaluation guide to score the soldier's performance. Brief the soldier. Tell the soldier what he is required to do IAW the task conditions and standards.

| PERFORMANCE MEASURES  | GO | NO-GO | N/A |
|---|----|-------|-----|
| 1. Wear protective gear?                                    |    |       |     |
| 2. Enter the water?   |    |       |     |
| 3. Practice drownproofing techniques, if applicable?        |    |       |     |
| 4. Create a PFD using trousers, if applicable?              |    |       |     |
| 5. Implement cold water survival techniques, if applicable? |    |       |     |

**Supporting Reference(s):**

| Step Number | Reference ID | Reference Name                                     | Required | Primary |
|-------------|--------------|--|----------|---------|
|             | FM 55-502    | Army Watercraft Safety (superseded by FM 4-01.502) | Yes      | No      |

**Environment:** Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT.

**Safety:** In a training environment, leaders must perform a risk assessment in accordance with FM 5-19, Composite Risk Management. Leaders will complete a DA Form 7566 COMPOSITE RISK MANAGEMENT WORKSHEET during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, NBC Protection, FM 3-11.5, CBRN Decontamination. In a training environment, leaders must perform a risk assessment in accordance with FM 5-19, Composite Risk Management. Leaders will complete a DA Form 7566 COMPOSITE RISK MANAGEMENT WORKSHEET during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, NBC Protection, FM 3-11.5, CBRN Decontamination.

**Prerequisite Individual Tasks :**

| Task Number  | Title                             | Proponent                         | Status   |
|--------------|-----------------------------------|-----------------------------------|----------|
| 551-88H-1701 | Perform Water Survival Techniques | 551 - Transportation (Individual) | Approved |

**Supporting Individual Tasks :**

| Task Number  | Title                             | Proponent                         | Status   |
|--------------|-----------------------------------|-----------------------------------|----------|
| 551-88H-1701 | Perform Water Survival Techniques | 551 - Transportation (Individual) | Approved |

**Supported Individual Tasks :**

| Task Number  | Title                             | Proponent                         | Status   |
|--------------|-----------------------------------|-----------------------------------|----------|
| 551-88H-1701 | Perform Water Survival Techniques | 551 - Transportation (Individual) | Approved |

**Supported Collective Tasks :** None