Preparing for and Surviving Cold Water

Statistics

- January 2006 – November 2008
  - Nationally, 75% paddle sport deaths: No PFD *[ACA]*
  - 36 boaters and paddlers died on Maine's waters.
    - The youngest were 18, 19, 21 and 23 years of age - **89% were over 30 - 64% were over 50.**
    - Age Distribution:
      - 3 - 30s
      - 6 - 40s
      - 8 - 50s
      - 8 - 60s
      - 6 - 70s
      - 1 - 80s

      [USCG Recreational Boating Fatality Statistics]

Statistics

- Water between 70 – 79 degrees F : 8% of accidents were fatal
- Water under 59 deg. F : 59% of accidents were fatal

[USCG Drowning Report]

- More Statistics:
  - **60% drowned in water under 50 degrees F**
  - **34% drowned in water between 50 – 68 degrees F**
  - **43% were less than 6 feet from safety**
  - **90% were not wearing life jackets**

[Life Saving Society Study 2007]

Two Common Themes

- Without a PFD you have little chance managing a cold water immersion
- All paddlers are between swims . . . Plan ahead and prepare

A Common Question

- What is the biggest risk associated with cold water?

- People always answer “Hypothermia” ; in fact, a drop in core body temperature is not immediate . . .

The 1 – 10 -1 Concept

- A new way of looking at the cold water experience.
- 1 minute – Cold Water Shock
- 10 minutes – Cold Water Incapacitation (Swim Failure)
- 1 hour – Unconscious from Hypothermia

The time will vary based on the water temperature but the concept is the same. 60 deg. water is much different than 35 deg. water!

[1-10-1 Credit : RADM Alan Steinman USPHS(Ret) and Gordon Geisbrecht, Ph.D, University of Manitoba "The Four Stages of Cold Water Immersion"]

The 1 – 10 – 1 Concept

- 911 – Remember 1-10-1

- So . . . with all this death, shock, and incapacitation . . . where is the fun?

- Plan ahead and prepare!

Cold Water Shock (1)

- Cause: The sudden contact of the skin with cold water.
- Symptoms:
  - Gasping
  - Hyperventilation
  - Cold/pain
  - Inability to Control Breathing to Swim
- Duration: 0 – 2 minutes (it will pass)

Cold Water Shock (1)

- *Be Prepared*
  - Be mentally ready to take a swim!
  - Wear a PFD.
  - Dress for immersion or at least in layers
  - Try and keep your head above water.
  - Understand that in time this will pass and you will be able to get your breathing under control.

Cold Water Incapacitation (10)

- Cause: Immersion, in water the body loses heat 27 times faster than in air
- Symptoms:
  - Cold/pain -> numbness, loss of dexterity
  - Exhaustion
  - Joint stiffness, reduced muscle control
  - Swim failure
- Duration: 3 - 15 minutes

Cold Water Incapacitation (10)

- *Be Prepared*
  - Wear a PFD. The only way to survive swim failure.
  - Practice self and group rescues. The clock is ticking . . .
  - Try and get body out of water. Climb on your boat!
  - This is the time to recover, rescue, summon assistance, or as last resort, swim.

Cold Water Incapacitation (10)

- *So when do you swim . . .*
  - Wearing a PFD
  - Likelihood of rescue is low (no witness, no comms.)
  - Close to a place of safety – a 'swim-able' distance
  - Not able to get out of water by climbing onto boat or other object
  - Moving water

[NASBLA – Small Craft Advisory Jan-Feb 08]

Cold Water Incapacitation (10)

- *So when do you NOT swim . . .*
  - When NOT wearing a PFD
  - Likelihood of rescue is high (group, comms., witness, position, float plan)
  - Not close to a place of safety –
  - Able to get out of water by climbing onto boat or other object
  - Rough water
  - When you must leave a place of safety (shore)

[NASBLA – Small Craft Advisory Jan-Feb 08]

Cold Water Incapacitation (10)

- *Cold Water Incapacitation is also called '**Swim Failure**'*
- *Be prepared . So you don't have to fail . . .*

Hypothermia (1)

- Cause: Normal body temperature drops below 98.6 deg. F
- Symptoms:
  - 97 deg. – shivering, judgment changes
  - 95 deg. – worse shivering, decrease in fine motor skills

  - 93 deg. – increased shivering, decrease in gross motor skills (can't walk safely, more prone to injury)
  - 92 deg. – "umbles" mumble, stumble, bumble. Cannot fix problems themselves
  - 90 deg. – shivering convulsions, fetal position
  - 88 deg. – metabolic icebox of doom 6-8 bpm, 2 rpm
    [Solo]
- Duration: 20 - 30 minutes +

Hypothermia (1)

- *Be Prepared*
  - Wear a PFD. Huddle and HELP (Heat Escape Lessening Position)
  - Positive mental attitude
  - Know the first-aid skills for minor Hypothermia, the risks of severe Hypothermia

Hypothermia (1)

- *Be Aware*
  - Minor Hypothermia can be treated very successfully with re- warmimg, warm drinks, food, etc…
  - Severe Hypothermia requires significant intervention by trained medical providers
    - Victim handled gently, horizontally, high risk of cardiac impact
    - Core re-warming first
  - With Hypothermia, you are not dead until you are warm and dead . . .

Post Rescue Collapse

- *Be Aware*
  - Afterdrop: With severe Hypothermia, body temperature will continue to drop
  - Handle victim gently, keep victim horizontal, time of cardiac risk
  - Professional rescuers and transport to a medical facility required.

About the Author

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