A review of the old PFD and new Life Jacket systems

Casco Bay
Flotilla 2-1,
U.S. Coast
Guard Auxiliary

May 2020

USCG Boating Statistic for 2018

- Accidents reported: **4,145**. (Many are not.)
- Injuries: **2,511**. Definition: Situation where person requires medical attention.
- Deaths: **633**. (5.3 / 100,000 registered boats)
- Fatal drowning: **488**.
- Person could swim: **439**.
- Not wearing PFD: **409**.
- No boating safety class taken: **468**.

<u>Good news,</u> number of deaths continues to fall.

<u>Don't</u> be one of the **5.3** in the 2020.

Personal Floatation Device

Why wear a PFD? – It's your choice unless you are under 11 in ME or 13 for USCG.

- Keeps you afloat, reduces the need for limb motion – saves energy, buys you time.
- Keeps you afloat through cold shock and cold incapacitation; "floater" easier to find.
- PDFs MUST have USCG approved label, be in a serviceable condition, correct size and adjusted for user add user and boat names.
- PFD is being replace by Life Jacket; later.
- https://www.apsltd.com/aps-advisor/guide-choosing-inflatable-life-jackets-expert-advice/

Personal Floatation Device

- Choosing the “best” PFD for you and your type of boating can be confusing for the average boater.
- Laws and information are designed to provide you with information needed to make a “good” decision. However, it is not always easy to interpret the available facts.
- This presentation is designed to provide members with a minimum background of information so they can explain the advantages and disadvantages of the kinds of PFD available on the table.

OFFICIAL PFDs

PFDs are certified according to the standards of one of 4 major organizations:

- Commercial International – Safety Of Life At Sea or SOLAS.
- International Organization for Standardization – ISO.
- European Committee for Standardization – CEN or CE.
- US Standards – USCG.

A PFD may have more than one authorization BUT only the USCG counts in the USA.

CATAGORIES OF PFDs

The USCG **Type** system will be in use for another 5+yrs. and textbooks continue to use it.

- Wearables: and Throwables (Type IV)
  - Offshore - Type I.
  - Nearshore - Type II.
  - Flotation Aids - Type III.
  - Special Purpose - Type V.

Types I – III have intrinsic (foam) floatation. Inflatable and hybrid usually have a two Type designations; e.g., Types II and V .

KINDS of USCG approved PFDs

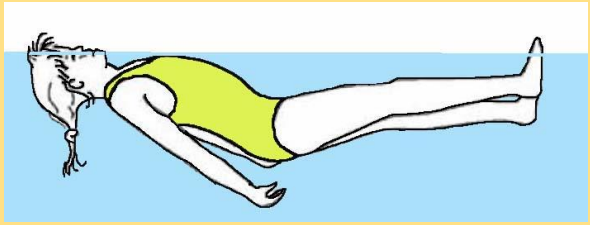
Not all available to recreational boaters!

Commercial or Services (USCG "Guide …")

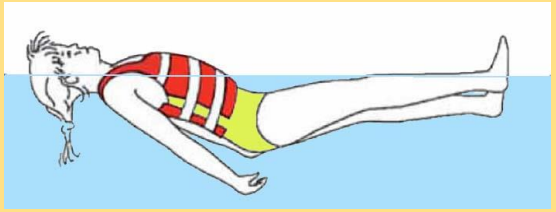
Type PFDs	Minimum Adult Buoyancy in Pounds (Newtons)
I - Inflatable	33.0 (150)
I - Buoyant Foam or Kapok	22.0 (100)
II - Inflatable	33.0 (150)
II - Buoyant Foam or Kapok	15.5 (70)
III - Inflatable	22.0 (100)
III - Buoyant Foam	15.5 (70)
IV - Ring Buoys	16.5 (75)
IV - Boat Cushions	18.0 (82)
V - Hybrid Inflatables	22.0 (Fully inflated) (100) 7.5 (Deflated) (34)
V - Special Use Device - Inflatable	22.0 to 34.0 (100 to 155)
V - Special Use Device - Buoyant Foam	

HOW PFDs Work

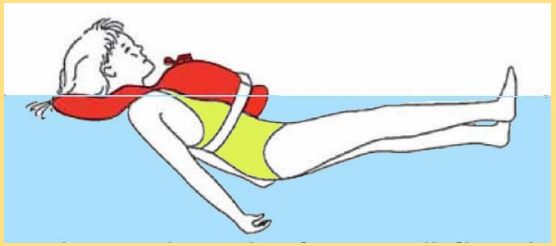
The average human body face-up will have the face part or all covered with water.



A PFD adds buoyancy, so you float higher. ~11lbs (50N) keeps your face just above water; here is 15.5lbs.



Yolk type with 15.5lbs (70N) buoyancy will keep head mostly above water.



PFD design and greater buoyancy and will keep head & body higher in the water. Adult weight and shape can affect floatation position.

“Life jackets” not PFDs

- Boating safety organizations recognized that USCG approved labels are not user friendly; people didn’t read them. Hence, they tend to make poor choices.
- In October 2014, a new ICON USCG approved label became Law (Federal Register / Vol. 79, No. 183 / September 22, 2014); Old or Legacy labels will last until all old stock is sold.
- The ICON system enables one information label to be used in Canada, USA and Mexico. Units are international (Newtons not pounds) & icons.
- USCG laws and basic designs of most LJs have not changed.

The Law

- 1. USCG and State of Maine: an approved, in good condition and correctly fitting **Life Jacket** MUST be IMMEDIATELY available for EVERYONE aboard a watercraft (including paddle boards).
- 2. A sound producing device is also required; usually a whistle.
- 3. Vessels 16'> MUST have a Throwable device (cushion, life ring etc.)

Criteria for grouping LJs & PFDs

- 1. Does a unit have buoyancy in the water without the action of a wearer? If you go in, will it keep you afloat?

  e.g., Foam filled and automatic inflation units
- 2. Will unit turn an unconscious wearer face-up?
- 3. How much buoyancy does the unit have? This was given in lbs and in the new system in Newtons along with icons.
- 4 These criteria have not changed, just shown in a different way.

A simple guide to Newtons

- A Newton (N) is an international unit used in place of pounds (lbs) for buoyancy.
- For the moment there are three numbers being used: 70, 100 and 150 Newtons (N).
- One pound (lbs) is equivalent to ~4.45 Newtons.
- The Newton number also includes other features not listed. For example, how high is your face above calm water level. This distance will change with different unit designs. As a wearer, choose the LJ best suited for your boating; that may mean more than one unit.

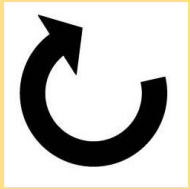
What do the ICONS mean? - 1

OFFSHORE: big waves, blue water, 150N (~34lbs).

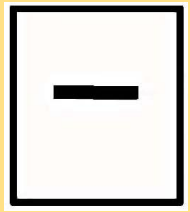
OFFSHORE: Smaller wave, coastal, 100N (~22lbs).

NEARSHORE: Small waves, close to land, 70N (~15.5lbs).

WILL turn unconscious wearer face-up.

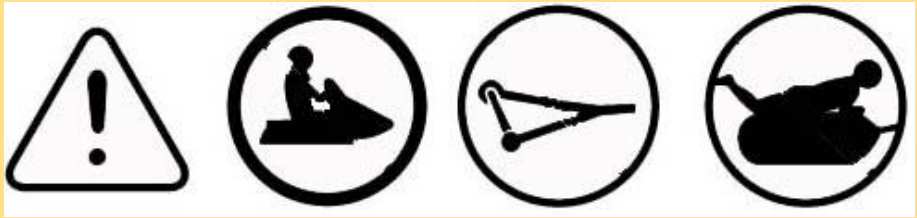


WILL NOT turn unconscious wearer face-up.



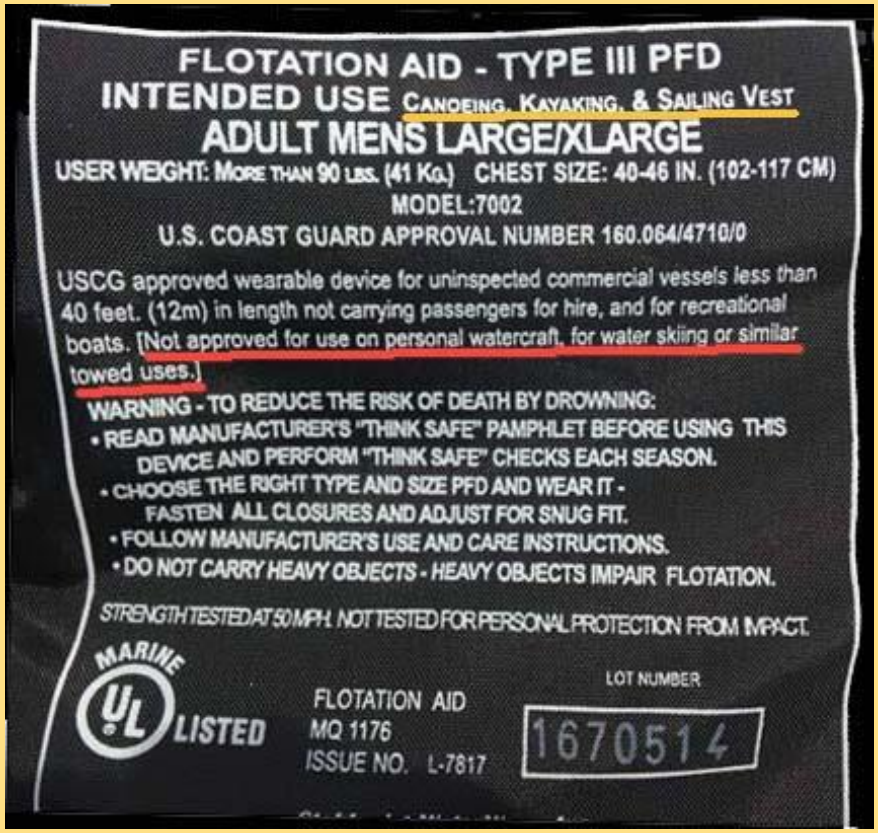
What do the ICONS mean? - 2

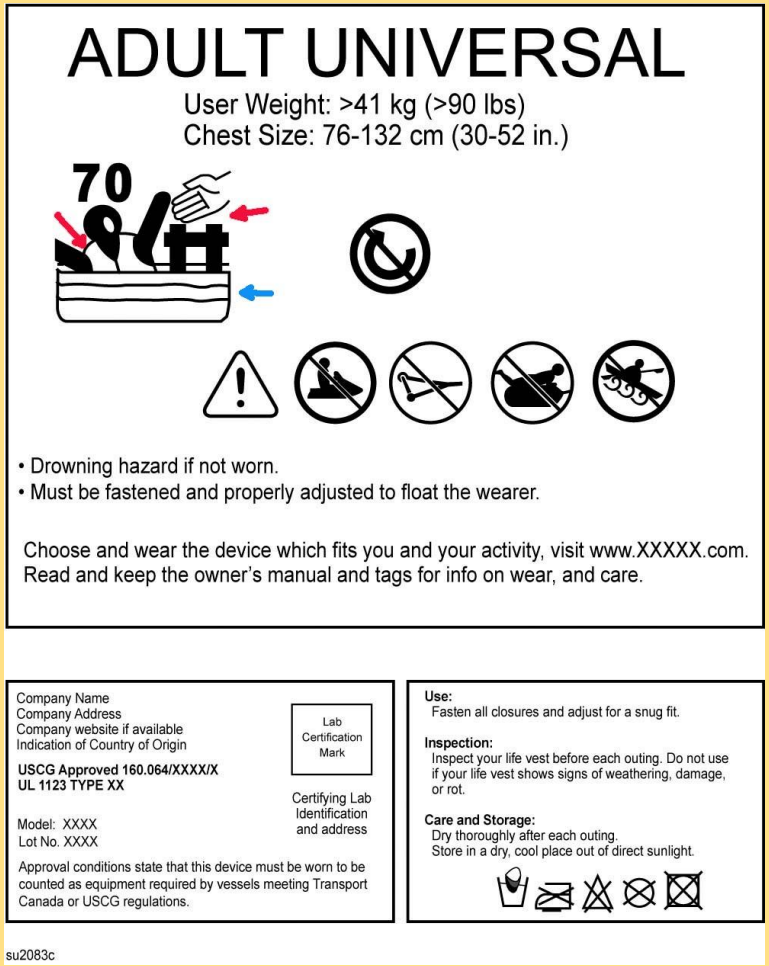
1. Warning sign
2. USCG NOT APPROVED for: Personal Water-Craft, water skiing, tube-riding or white-water boating



3. USCG APPROVED for: PWC, water skiing, tube-riding and white-water boating

Old & ICON Systems (Floatation Aid)





Comparison of Old & ICON Systems

Newtons replace pounds, icons replace text.
More goes into a Newton # than just pounds.

Old Type		New Icon
Type I 22lbs	Offshore	
Type II 15.5lbs	Nearshore	
Type III 15.5lbs	Flotation Aid	
One (1) lb = approx. 4.45 Newtons		
Type V (special purpose		Check the icons

CATAGORIES OF PFDs /LJs

The USCG **Type** system will be in use for another 5+yrs. and textbooks continue to use it.

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  - Flotation Aids - Type III.
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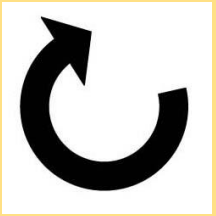
Offshore (Type I)



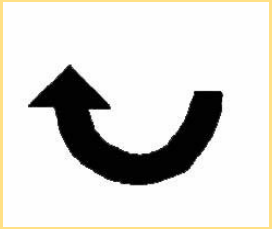
- Designed to turn most un-conscious wearers face up.
- International orange, reflective tape, light & whistle.
- Provides best chance of survival, supports neck.
- Usually considered commercial.
- Currently, no Type I inflatables or hybrids are available for recreational use.

(Foam, 22lbs of buoyancy.)

Jacket type

Yoke type

Nearshore (Type II)



- General purpose, foam.

- Turns <u>most</u> unconscious wearers face up.
- Less bulky.
- (15.5+lbs of buoyancy).

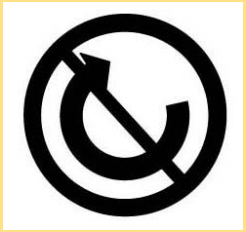
Yoke type

Flotation Aid (Type III)

Definition: **Not** designed to turn an unconscious wearer face up.

- Keeps wearer afloat (face-up or down).
- Most comfortable type.
- Unsuitable for heavy seas.
- Greater freedom of movement.
- Many designs are based on a particular sport, e.g., kayaking, fishing etc.
- Choose the design best suited for you and your boating.
- Try one on before you buy; must be comfortable.

Flotation Aid (Type III)

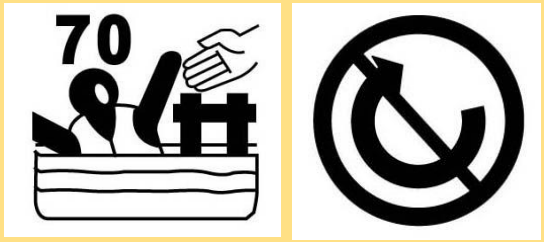


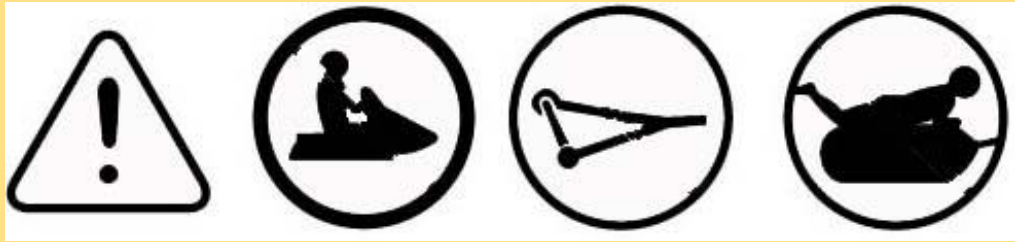
General purpose; foam, keeps body warm, some neck support. (15.5+lbs of buoyancy.)

Paddle craft type; free around arms, side-access pockets, some neck support.

Flotation Aid

Stronger construction, impact resistant foam.





PWC and water towing sports.

White water paddle craft; free around arms, side-access pockets.

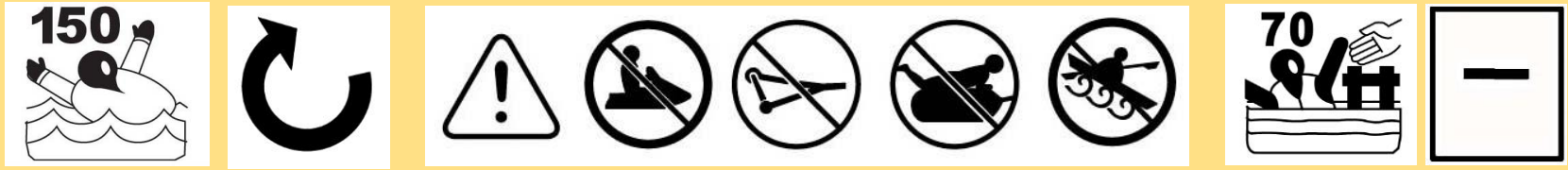
Special Purpose (Type V)

- This includes recreational AND work PFDs; each group cannot wear the others. Frequently not realized.
- **Methods of Inflation:**
  - Manual inflation, pull on tab.
  - Automatic inflation 2 mechanisms:
    - Water dissolves a salt or paper tablet.
    - Hydrostatic pressure release (initiated when more than 4” deep.)
  - Back-up: inflate through mouth tube.

Special Purpose (Type V)

Recreational Inflatables – 15.5 to 38lbs of buoyancy:

- Compact and comfortable to wear.
- Head support, only has buoyancy when inflated. Uninflated or punctured NO buoyancy!



Inflatable automatic, will turn most unconscious wearers face up.
(Type V & II)

Inflatable manual, will not turn unconscious wearer face up.
(Type V & III)

Floatation Aid inflatable (Type V – III)

Belt type: Where your hands need to be free, e.g., Bass fishing, paddle boarding. Manually inflated MUST be pulled over the head and secured; 35lbs buoyancy.

Hybrids – foam and inflation

- Enough foam to keep wearer's face above water, manual inflation to raise body higher.
- Only a few designs available at present but more are being developed.

Hybrids (in stores now)

MUSTANG Khimera, new Canadian design.

<u>Buoyancy</u>:
8lbs foam +
12lbs inflation
= 20lbs

FOOT NOTE (March 2020): Two manufactures use their own icons for the old Type system.

Nearshore & Floatation aids for non-adults (Types II or III)

Infant: 8 to 30lbs
Child: 30 to 50lbs
Youth: 50 to 90lbs

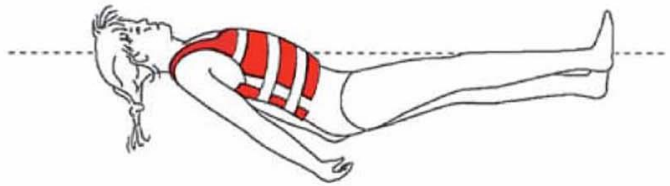
Make sure the young person has the correct rated LJ. Too much or too little buoyance is very dangerous.

One design of PFD will be good for most individuals, but with a few individuals the PFD may turn them face down. Get another design; test new PFDs before boating.

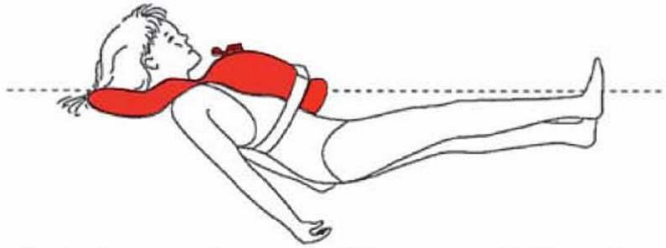
TEST PROCEDURE

Teach your child to turn to a "face-up" position from a "face-down" position. Have your child practice turning himself/herself until you are certain that he/she can turn to a "face-up" position consistently and reliably.

Floating "face-up"



Floating "face-up" using a device with head support.



If your child cannot turn to maintain a relaxed, "face-up" floating position after getting used to wearing a PFD, try another style or type of PFD.

MAKE SURE YOUR CHILD WEARS A PFD AT ALL TIMES!

THROWABLE DEVICES

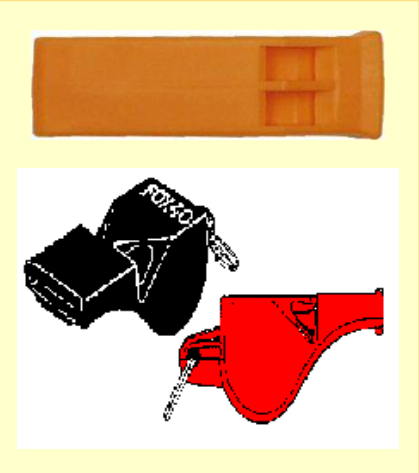
Must be USCG approved and on all boat 16’ >.

- Ring buoys must be white or orange; reflective tape, name of boat.
- Buoyant cushions. Choose red or orange. Blue and white not easy to see in water.

Attached life-lines <u>always</u> through ring. **Good:** person can be pulled to boat. **Bad**: line in the water and possible danger to propeller.

Required

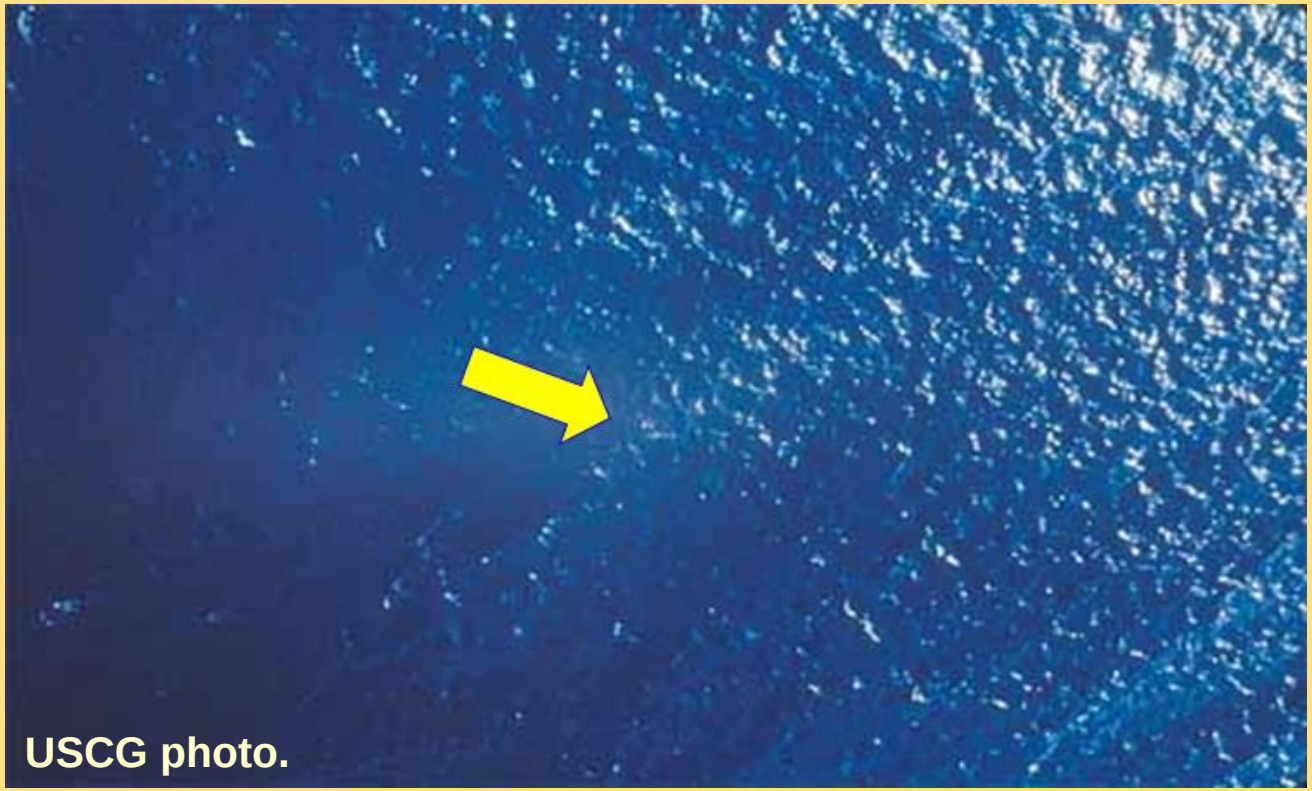
Attached whistle to PFD (USCG approved). Sound carries further than you can shout.



Encouraged

Signal light, 50 flashes/ min., continuous for 9hrs.

Well … do you feel lucky?



From a USCG SAR “helo” at 300’ search altitude, person without PFD