

PFD Wear & New Technology and PFD Approval Process

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The Perfect PFD!

- Always protects the airway -- Effective
- Always ready to work -- Reliable
- Always “on” -- Worn or Wearable

$$(E \times R \times W = 1)$$

Does the perfect PFD exist? -- NO

Can it exist? – Probably Not

So, now what? – Work on weak links . . .

The Weakest Link --

- Without doubt Wearability is the weak link!
- Overwhelming evidence that wearing PFDs will dramatically reduce boating fatalities.
- Are there any credible arguments to the contrary?

New Technology & PFD Wear

- Inflatable PFDs “to the rescue”?
 - Latest technology
 - Cooler (less body coverage) & less bulky
 - High maintenance – ~20% unarmed in studies
 - USCG slow to approve for reliability concerns
 - Indicating inflators should help readiness
- But are they more Wearable?

Making “Wearable” PFDs

- Wearability is very personal --
 - Style -- color, cut, . . .
 - “Comfort” . . .
 - Warmth, coolness, . . .
 - Body coverage, . . .
 - Functionally . . .
 - Perceived need . . .
 - “Desirability” . . .

USCG Studies of Inflatables

- Two studies – 1979-81 & 1990-92
- Reliability:
 - Modern inflatables are rather durable
 - ~20% of inflatables unarmed
- Wearability – very complex:
 - Increased comfort does not result in increased wear

New Technology = Solution to Wear?

- Will new technology solve the problem?
Not likely, “Wearability” too complex
- Have we gone as far as we can?
Probably not, but --
“Wearability” can’t instill desire
- Is lack of “comfort” a valid excuse?
Not likely.

Conclusion: Don’t count on new technology alone to significantly increase wear rate.

PFD Approval Process

The major steps:

- (Pre-approval review)
- Testing to USCG regulations & Underwriters Laboratories (UL) Standards at USCG Recognized Laboratory, UL;
- USCG review; then
- USCG certification & UL “Listing”, “Labeling”, & follow-up

PFD Approval Process (cont'd)

Factors in approval speed and success --

- Cost - \$5,000 to 25,000
- Time – 3 months to 1 year
- Comprehensive standards
- Understanding of requirements:
 - Need to meet all the minimums
 - Difficulty of going outside standards
 - Limits on ability to make trade-offs
 - Need for minimum Reliability & Effectiveness

PFD Approval/Standards Process

- Changing standards or regulations takes time and adequate justification
- Consensus process with large number of interests – producers, users, general public
- Equivalence option
 - Requires robust analysis accepted by USCG
 - USCG restricted approval & outside scope of UL standard.

PFD Approval Boundaries

USCG must maintain/be aware of:

- Public confidence in devices (Reliability & Effectiveness)
- Consistent application of the standards and process
- Effect of non-compliance
- Boater awareness of serviceability

Equivalence in Approval

- Equivalency informally based on lifesaving potential (risk-based approval)
- Minimum Effectiveness & Reliability limits
- Long-term effort to formalize this process into a risk-based standard