

Strengthening the Partnership for Offshore SAR Success

7 August ~~2013~~ 2015

Strengthening
the Recreational Vessel Operator – Responder
Partnership for SAR Success to
Save More Lives at Lower Cost

Leveraging Emergency Locator Beacon Technology
for Improved distress-alerting, position-indicating,
and active-signaling

Risk Management – Operating Offshore

We all manage risk in our lives every day ... we try to avoid unnecessary risks ... we try to prevent bad things from happening ... to the extent we can ... and we prepare for the bad things that may happen, despite our best efforts ... to limit the consequences ... avoid loss of life/property ... facilitate effective and efficient response, and recover to normal as soon as possible.

In the context of offshore boating accidents, owners, operators, boat and equipment manufacturers, educators, regulators, enforcers and responders are all partners in reducing the frequency of accidents, and in reducing the severity of accidents ... by action before, during, and after accidents ... at the tactical/incident and strategic/system levels.

Bad things do happen offshore ... often with little warning ... non-emergency and emergency ... things beyond self-help ... non-emergencies not resolved timely tend to become emergencies ... putting lives and property at great risk. **This discussion is about owners and operators being ready for reliable, effective, and efficient interaction with responders for successful outcomes when bad things happen offshore.**

Partnership for Search and Rescue Success

Search and Rescue success requires a partnership between vessel owner/operators and responders.

Offshore operators have four key responsibilities in this partnership.

- **Distress-Alerting.** Alert responders to the distress situation—no alert, no awareness, no response. Timely alerting is essential; delayed alerting can compromise outcome, especially in cold water/high drift rate scenarios.
- **Position-Indicating.** Indicate the distress position—get responders into the ballpark, update; get and keep responder sensors in range of target signals. Accurate, fresh position indicating is essential. Uncertain/stale position indicating translates to large search areas. Probability of success is a function of getting the target in the box and being able to detect it.
- **Active-Signaling.** Actively signal—present a “bigger” electronic/visual profile, be more “visible” to responder sensors, get “seen,” “get detected”—no detection, no rescue.
- **Surviving in Environment.** Survive in the distress environment—give responders a reasonable chance to reach the scene, locate and rescue

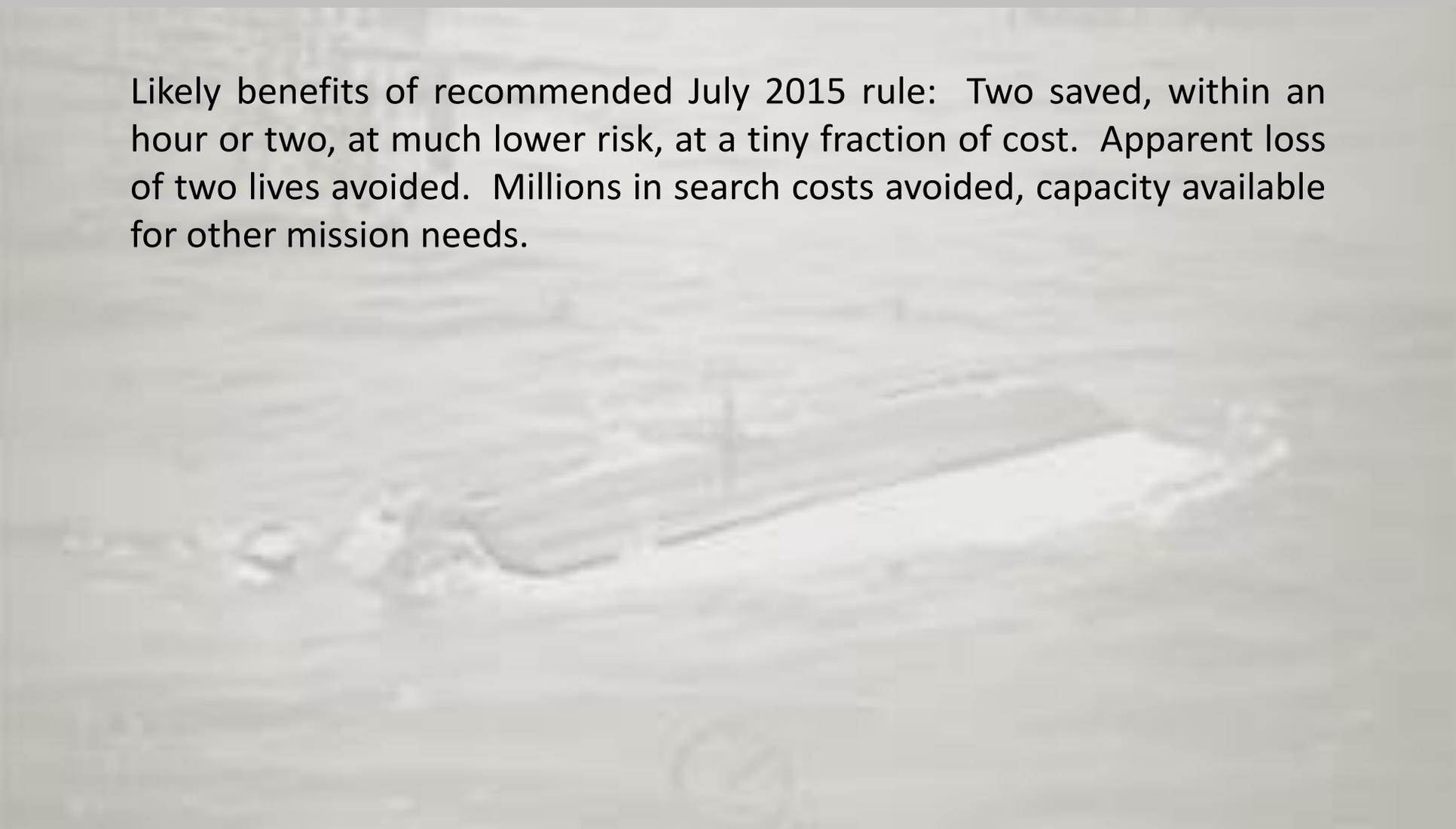
Most losses trace to shortcomings in one or more of the above.

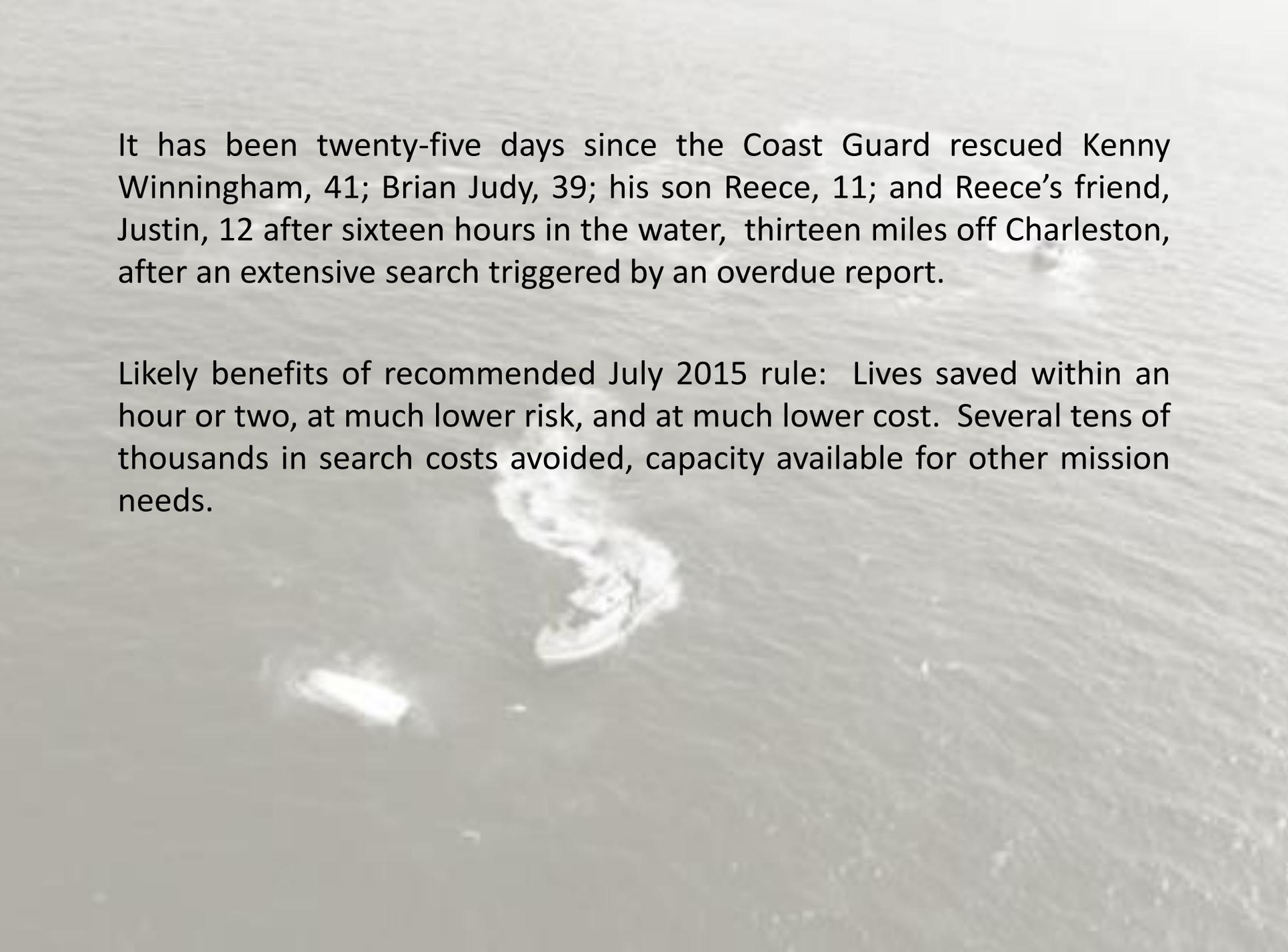
Situation Report – Current Situation

- OCT 2010. CG Authorization Act of 2010 gave CG new lifesaving authority to require emergency locator beacon carriage for recreational vessels operating beyond three miles offshore. Legislators, disturbed by the unnecessary loss of life and unnecessary search costs typified by the 2009 Gulf of Mexico NFL players case, wrote in the new authority.
- NOV 2012. Acting on CG request, NBSAC investigated appropriate courses of action under the new authority and by unanimous resolution recommended aggressive action by July 2015, requiring ELB carriage for all, except for rec vessels operating between three and twenty miles offshore, in areas with regular R21 coverage, carrying properly programmed, DSC VHF marine radio connected to GPS.
- MISLE deficiencies posed challenges for preliminary CG lifesaving and response efficiency analyses.
- SAR and BSX have presented preliminary findings to MSSC.
- **Armed with new authority and facing significant continuing unnecessary loss of life and search inefficiency--for lack of adequate offshore distress-alerting, position-indicating and active-signaling--CG must decide a way ahead, based on evidence, and justify action or inaction.**
- Cases of the last 30 days, including the unsuccessful seven day search for 14 year olds, Austin Stephanos and Perry Cohen, highlight the continuing need for action.
- BoatUS has signaled no objection to an NBSAC recommendation framed rule.
- Fall 2015. Marine Safety and Security Council action pends.

It has been seven days since the Coast Guard suspended its seven day search for Austin Stephanos and Perry Cohen, two 14 year-old boys, overdue from a fishing trip off Jupiter Inlet.

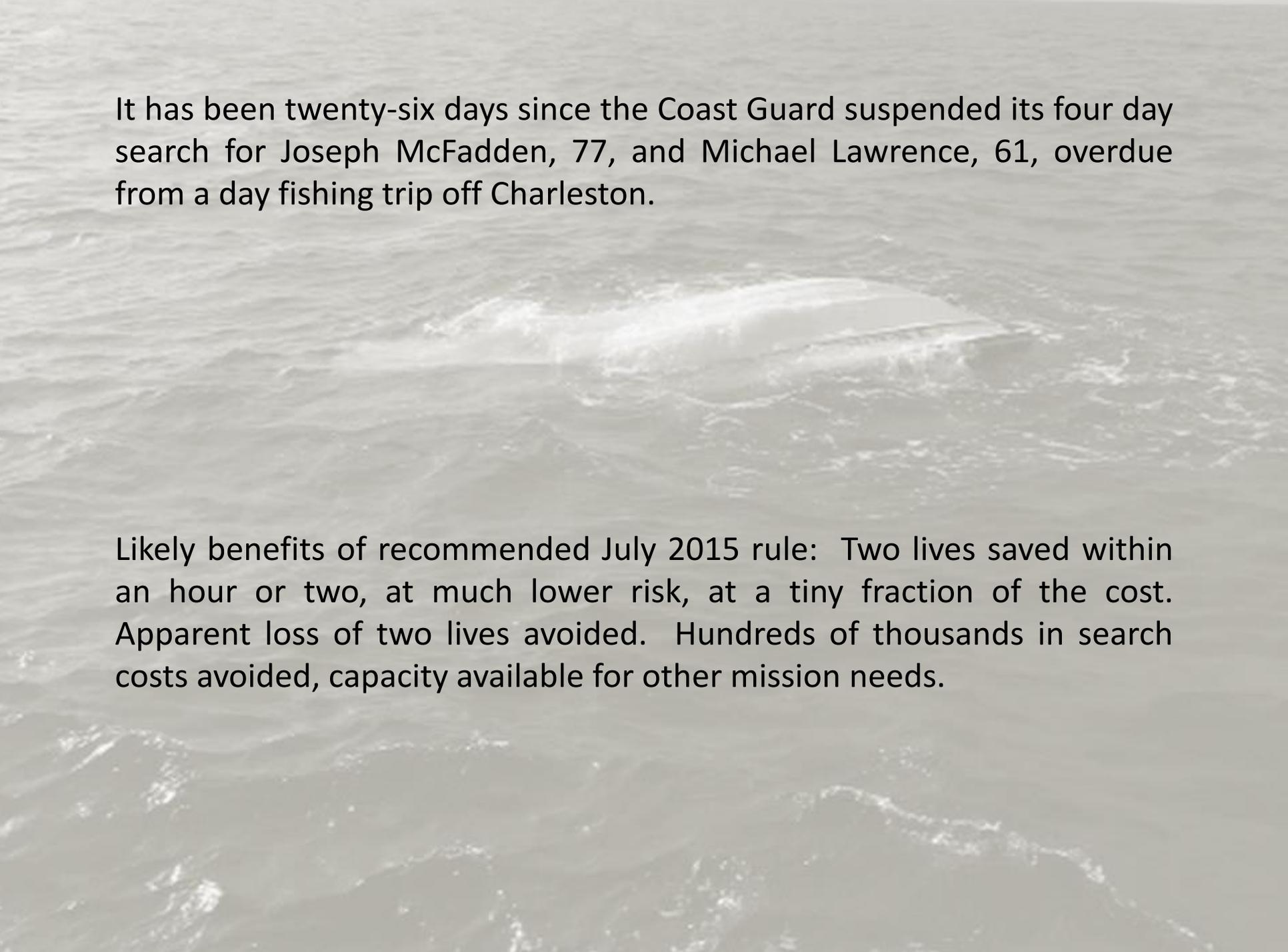
Likely benefits of recommended July 2015 rule: Two saved, within an hour or two, at much lower risk, at a tiny fraction of cost. Apparent loss of two lives avoided. Millions in search costs avoided, capacity available for other mission needs.



An aerial photograph of a body of water with a small boat in the center. The boat is white with a dark hull and is moving, leaving a white wake. The water is a dark, textured grey. The text is overlaid on the upper left portion of the image.

It has been twenty-five days since the Coast Guard rescued Kenny Wunningham, 41; Brian Judy, 39; his son Reece, 11; and Reece's friend, Justin, 12 after sixteen hours in the water, thirteen miles off Charleston, after an extensive search triggered by an overdue report.

Likely benefits of recommended July 2015 rule: Lives saved within an hour or two, at much lower risk, and at much lower cost. Several tens of thousands in search costs avoided, capacity available for other mission needs.

A grayscale photograph of a whale breaching the ocean surface. The whale's back and dorsal fin are visible above the water, creating a splash. The water is dark and textured with small waves.

It has been twenty-six days since the Coast Guard suspended its four day search for Joseph McFadden, 77, and Michael Lawrence, 61, overdue from a day fishing trip off Charleston.

Likely benefits of recommended July 2015 rule: Two lives saved within an hour or two, at much lower risk, at a tiny fraction of the cost. Apparent loss of two lives avoided. Hundreds of thousands in search costs avoided, capacity available for other mission needs.

Likely Benefits of Just These Three Cases of Last Thirty Days

- If ELBs carried in these cases
 - Four losses of life avoided
 - Something on order of \$3M in search costs avoided
 - Net benefit – Almost \$40M
- If these were the only benefits for the current year, and annualized cost of compliance is about \$10M, ROI for year 4:1.
- Better for persons at risk, loved ones, public, responders, everyone.



Situation Report – Background and Action Taken

- May 2006. On the heels of State of Hawaii [and Australia] action requiring recreational vessels to carry VHF radios/emergency locator beacons while operating offshore, the GMDSS Task Force petitioned the Coast Guard to take similar action.
- The Office of Boating Safety responded on behalf of the Commandant citing lack of authority, lifesaving and search efficiency benefits notwithstanding.
- October 2010. The Coast Guard Authorization Act of 2010 gave the Coast Guard new authority to require emergency locator beacon carriage for recreational vessels operating beyond three miles offshore.
- January 2011. The GMDSS Task force, in light of new authority, renewed its petition for Coast Guard regulatory action by letter to the Commandant.
- January 2012. The Office of Boating Safety responded to GMDSS Task Force Letter of January 2011 indicating that the matter had been referred to NBSAC for review and advice.

Situation Report – Action Taken

- November 2012. After careful examination and by unanimous resolution, **NBSAC recommended Coast Guard action to require ELB carriage for all U.S. recreational vessels operating beyond three miles offshore NLT July 2015.** ELB defined to include EPIRB, PLB, and other devices Coast Guard may accept (e.g. SPOT/DeLorme InReach). Requirement to be waived for recreational vessels operating between three and twenty miles offshore carrying DSC VHF marine radio, with properly programmed MMSI and connected to GPS, in areas with regular R21 coverage (as Commandant designates). **NBSAC found the majority of the potentially affected public to consider the requirement reasonable and appropriate.**
- 2011. In independent, but relevant action, at DHS direction, CG raised its Annual SAR System performance [lifesaving effectiveness] and Time-On-Scene-within-two-hours goals from at least 77% and 90% respectively to 100% each. The Coast Guard has failed against these new goals with performance remaining in the 75-78% and 92-94% ranges.
- Trends. Annual lives saved over the last ten years ranged between 4000 and 6000; lives lost/not accounted for [missing at suspend] ranged between 1100 and 1400. While lives at risk have trended down over the last several years, lives lost before notification have trended up, signaling opportunity/need.

Situation Report. Action Taken.

- Many lives lost/persons missing unnecessarily lost for lack of adequate distress-alerting, position-indicating, active-signaling, and/or survival capabilities.
- Many saves involved near misses despite lack of adequate distress-alerting, position-indicating, active-signaling, and/or survival capabilities.
- Many cases, successful and not, involved expansive, expensive, inefficient, search-intensive responses for lack of adequate distress-alerting, position-indicating, active-signaling capabilities
- Late 90s. After *Morning Dew*, top SAR performance measure modified to make the Coast Guard responsible for lives lost before notification, and subsequently for persons missing at suspend.
 - In effect, this change made the SAR program accountable for effective distress guard and for effective distress guard use.

Situation—Additional Background

- Regulations promulgated under the Commercial Fishing Vessel Safety Act of 1988, requiring universal EPIRB carriage, and cold water protection according to environment, have reduced loss of life by more than half. Survival rates where emergency equipment was used were more than twice the rate where not (65% compared to 28%). Significant opportunities identified to improve these rates through improved training in use and maintenance of required gear. [Source: A Review of Lost Fishing Vessels and Crew Fatalities, 1992-2010 DEC 2011 CG-5452]
- Better results should be expected for recreational vessels. The vast majority of recreational vessel incidents occur well within a two-hour response radius, under generally more forgiving conditions.

Future Plans/Recommendations

- Present complete effectiveness and efficiency analyses to MSSC for decision.
- Act with deliberate speed to close knowledge gaps around potentially affected population, current EPIRB/PLB/VHF radio carriage rates. Capture relevant data around outcome critical distress-alerting, position-indicating, active-signaling performance. Improve MISLE SAR data quality control, integrity.
- Act strategically. Comply with GPRAMA 2010 in spirit and letter. Improve sense of program cost–performance curve. Develop appropriate ROI measure.
- Conduct forward-looking analysis. Employ analytic methods/tools appropriate to decision-making under uncertainty.
- Decide course-of-action based on evidence. Err on side of safety.
- Lead. Use authorities and capabilities as maritime safety educator, regulator, enforcer, and responder to lead change, strengthen partnership for SAR success. Improve “customer” alerting, position-indicating, active-signaling, and survival capability/ performance by all available means. Leverage all real world events.
- Act transparently.

Achievable Outcomes/Intermediate Outcomes

- As rulemaking action is evaluated, strong leadership and aggressive awareness raising efforts improve offshore recreational vessel VHF/ELB carriage, SAR effectiveness and efficiency performance,.
- A properly deployed, reasonable rule, along lines of NBSAC Resolution
 - Strengthens the partnership for SAR success by substantially improving distress-alerting, position-indicating, and active-signaling.
 - Improves lifesaving effectiveness and efficiency. A greater share of lives at risk are saved offshore and in coastal waters. Affected vessels are better protected beyond three, as well as inside. Additional vessels operating inside three, voluntarily carrying, are protected as well. Search cost avoidance more than offsets increased false alarm costs, more lives are saved at lower public cost.
 - Reduces hoax, flare, and uncorrelated MAYDAY cases and costs
 - Improves lifesaving return on very substantial public investments in Rescue21. SARSAT technology, and response infrastructure
 - Improves beacon registration compliance – contains false alarm overhead
 - Enhances safe enjoyment of offshore recreational boating
- Benefits to affected owners far outweigh very modest costs. Improved performance enabled by those benefiting most directly.
- Excellent communications and relationship management yield an effective and broadly supported result.
- SAR resource hours saved are reprogrammed to next highest ROI opportunities/gaps. Base is managed for highest multi-mission performance value.
- Distress Incident Risks are managed toward acceptable levels at acceptable costs. SAR effectiveness, efficiency, and time-on-scene performance improve. Marginal improvements have an ROI of NLT 4:1.
- Related GAO, OMB, independent performance reviews reflect GPRAMA compliant practices, performance improvement.
- CG strategic management leadership affirmed. CG safety/SAR leadership affirmed.

NBSAC Unanimous ELB Resolution

NATIONAL BOATING SAFETY ADVISORY COUNCIL

November 11, 2012
Watsonville, CA

Resolution Number 2012-90-01

Emergency Locator Beacons

WHEREAS, Section 618 of the Coast Guard Authorization Act of 2010 redefined "associated equipment to include emergency locator beacons for recreational vessels operating more than 3 nautical miles from shore", which provided the USCG with the authority under 46 USC 43 to require the carriage of emergency locator beacons; AND

WHEREAS, The United States Coast Guard requested the advice of the National Boating Safety Advisory Council on this new authority; AND

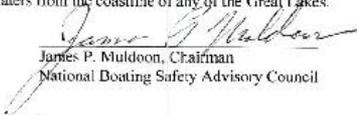
WHEREAS, The National Boating Safety Advisory Council assigned this task to its Boats and Associated Equipment subcommittee; AND

WHEREAS, The National Boating Safety Advisory Council's Boats and Associated Equipment Subcommittee consulted with national experts, interested parties and search and rescue authorities;

NOW, THEREFORE, BE IT RESOLVED that the National Boating Safety Advisory Council, meeting in regular session in Watsonville, California, on November 11, 2012, recommends that the U. S. Coast Guard require effective 7/1/2015, all U.S. recreational vessels operating more than three nautical miles offshore from the coastline of the United States carry a properly registered emergency locator beacon. The requirement to carry an emergency locator beacon is waived for US recreational vessels operating between 3 to 20 nautical miles offshore in waters to be determined by the Commandant provided the vessel carries a VHF-DSC Marine radiotelephone (fixed mount or hand held) with connected or integral GPS positioning capability and a programmed Maritime Mobile Service Identity (MMSI) number.

For the purposes of this resolution, the definition of an Emergency Locator Beacon shall be "a radio beacon that can be used for emergency locating purposes for a recreational boater. The term includes a Coast Guard approved Emergency Position Indicating Radio Beacon (EPIRB), Personal Locator Beacon (PLB), or other device accepted by the Coast Guard for this purpose."

Note: This definition would apply to vessels operating beyond three nautical miles from the baselines from which the territorial sea of the United States is measured or beyond three nautical miles in United States Waters from the coastline of any of the Great Lakes.


James P. Muldoon, Chairman
National Boating Safety Advisory Council

It is August ~~2013~~ 2015.

Soon ~~three~~ five years will have passed since the 15 October signing of the Coast Guard Authorization Act of 2010 giving the Coast Guard authority to require emergency locator beacon carriage for recreational vessels operating beyond three miles offshore.

More than thirty years have passed since the US, Canada, France, and the USSR rose above their differences to apply high technology for humanitarian purpose and make COSPAS-SARSAT operational. System space and ground segments are robust. Migration to GPS, Galileo, and GLONASS satellites is well underway. The evolving system will produce faster alerts, with more accurate positions, globally, with a “message acknowledged” capability. Beacons are highly reliable, increasingly compact, lightweight and affordable. Beacons provide unequalled distress-alerting, position-indicating, and active-signaling capability. Over 30,000 lives have been saved worldwide. Voluntary ELB carriage rates are substantial, but not sufficient.

It is August ~~2013~~ 2015.

~~Thirty-one~~ Thirty-three years have passed since NBC Chief Science Correspondent, Robert Bazell's family drifted for three days in the Caribbean without food or water before rescue by passing tankship.

~~Thirty~~ Thirty-two years have passed since the February 1983 MARINE ELECTRIC sinking with the loss of 31 of 34 crew, giving rise to the Coast Guard Authorization Act of 1984 rescue swimmer program requirement.

~~Thirty~~ Thirty-two years have passed since Red Sox farm club phenom, Tony Latham, and friend, Mark Zastrowmy died in the Gulf.

~~Twenty-five~~ Twenty-seven years have passed since passage the *Commercial Fishing Vessel Safety Act of 1988, requiring ELB carriage and reducing related loss of life by more than half.*

It is August ~~2013~~ 2015.

~~Twenty-two~~ Twenty-four years have passed since the miraculous rescue of five-months-pregnant Dr. Allison Wilcox and her two ferry-crew mates. They were located by the last C130 on scene on one the last few search legs on the last planned search day of an intensive and protracted search for the 38' Beneteau overdue from Tampa to Newport in the wake of Hurricane Bob. After surviving countless raft capsizings and twelve days adrift, the skipper had only three things to say to the press, "EPIRB, EPIRB, EPIRB." Incident subject of 1993 network TV movie, *Desperate Journey*.

~~Eighteen~~ Twenty years have passed since the BoatUS Safety Foundation started its EPIRB rental program. *More than 6,000 rentals, 12,000 vessel weeks, and 48,000 person weeks of protection later, the program claims 69 lives saved and only one life lost with more than twenty-eight activations and no false alarms.* That's about one activation per 220 rentals.

~~Fifteen~~ Seventeen years have passed since *Morning Dew* with the loss of family members, Bobby Lee Hurd (14); Michael Paul (16), Michael Wayne (49), and James Daniel Cornett (13). *In the wake of Morning Dew, Coast Guard Commandant, Admiral Loy asserted that neither he nor any prudent seaman would venture offshore without an EPIRB. NTSB and BoatUS asserted the same.*

It is August ~~2013~~ 2015.

~~Four~~ Six years have passed since *NFL players, Marquis Cooper, Corey Smith and friend Will Bleakley died in the Gulf of Mexico. Survivor, Nick Schuyler, gave his account of the incident in Not Without Hope. This incident catalyzed legislation giving the Coast Guard its new ELB authority. Relativity Media plans to take the incident to the big screen in a production starring The Rock, Dwayne Johnson, as Schuyler.*

Since the early '80s hundreds of others have perished needlessly for lack of adequate distress-alerting, position-indicating and active-signaling capability.

Rescue 21 is nearing completion, but the Coast Guard has no authority to require recreational vessels to carry compatible radios and voluntary carriage rates remain low. A minority of radios have properly programmed MMSIs and very few are connected to GPS. GPS integrated units are now reaching the market.

Outfit of Coast Guard aircraft with 406MHz Direction Finding with the ability to read the GPS position encoded in each 50 second alert transmitted by GPS capable beacons, started in 2007, is nearing completion.

For years now, the Coast Guard has equipped its own air and boat crews with PLBs to manage operational risks toward acceptable levels at acceptable costs

It is August ~~2013~~ 2015.

NTSB has recommended all U.S. EPIRBS/PLBs have integrated GPS capability. RTCM agrees and is taking action. Virtually all PLBs manufactured in the last few years are GPS capable.

The National Recreational Boating Safety Strategic Plan 2012-2016 calls for a review of equipment carriage requirements, including EPIRBS/PLBs.

The DHS Strategic Plan 2012-2016 includes a Goal to Ensure Maritime Safety and Stewardship

- In the maritime realm, DHS leads U.S. government efforts to safeguard lives and to protect the safety of our citizens through marine safety regulation and search and rescue activities
 - Objective: Safeguard life in the maritime environment
 - Prevent loss of life in the maritime environment

It is August ~~2013~~ 2015.

A reasonable rule under this authority will–

- Strengthen the partnership for Search and Rescue success by improving offshore recreational vessel distress-alerting, position-indicating and active-signaling capabilities
- Save more lives at lower costs – Improve offshore lifesaving effectiveness and efficiency benefits far in excess of costs
- Improve beacon registration compliance – Contain false alarm overhead
- Improve lifesaving return on very substantial public investments in Rescue21, COSPAS-SARSAT technology, the entire response infrastructure
- Reduce hoax, flare, and uncorrelated MAYDAY cases and costs
- Free response capacity to reduce other mission performance/resource gaps
- Enhance safe enjoyment of offshore recreational boating

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Until ship Coast Guard is ready to issue rules under this new authority, recommend Coast Guard –

- Continue to promote the power of prevention and preparedness.
- Embrace and communicate the partnership for Search and Rescue Success concept, making clear the importance of vessel operator contributions –
 - Timely distress-alerting ... to activate response
 - Accurate distress position-indicating [and updating] ... to get responders in the ballpark
 - active-signaling ... to close the locate deal, and
 - Survival ... to stay alive to enable rescue
 - All appropriate to the operating environment ... water temp, harshness, remoteness

It is August ~~2013~~ 2015.

- Make clear that—
 - Float plans and visual signals alone do not satisfy offshore distress-alerting and position-indicating real-world-success requirements.
 - Lifejackets alone do not protect adequately against cold water.
- Strongly urge—
 - VHF-FM marine radio and GPS EPIRB or maritime suitable GPS PLB [float and strobe] or [RTCM SEND compliant device, other e.g. SPOT/DeLorme InReach] carriage to better assure reliable distress-alerting, position-indicating, and active-signaling.
 - VHF radios be properly MMSI programmed and connected to GPS for better alerting and more accurate position-indicating.
 - Cold water protection, including personal protective gear/raft, appropriate to environment.
 - Operating in company for more reliable distress-alerting, position-indicating, active-signaling, survival, and capacity for self-help.
- Use government and public affairs machinery to better leverage real world events to enhance safety, mission performance effectiveness & efficiency

These Ships Seized Response Initiative with Lifesaving Results

DEC '83 CGC WHITE PINE, heading for routine ATON work on the Florida's Big Bend Gulf coast, copied a GRU Mobile Urgent Marine Information Broadcast reporting P/C HOO LOO overdue with 4 POB from a trip to dive the EMPIRE MICA wreck. CO, CGC WHITE PINE, not involved in the active search, altered his track to run up HOO LOO's likely drift line and posted night orders to maintain a sharp lookout. Dense fog hampered the active search effort. In the early morning following, WHITE PINE's watch detected an intermittent radar target just a few miles out. The Officer of the Deck reported the contact to the CO, who directed the OOD to divert and investigate. WHITE PINE's searchlight barely penetrated the dense December morning fog. The figures of the four survivors in the water with the capsized hull only came into view alongside at the buoy port. The men had been in the water for almost four days. The most severely hypothermic man perished just hours after MEDEVAC to a Panama City hospital. The others survived. Another cutter had sighted four flares fired by the men on the night of the capsizing. The men watched the ship approach to within a few miles, search, and depart scene; their last flare would not fire.

JAN '12 CGC VENTUROUS was on Law Enforcement patrol south of Jamaica in rough seas, when young lookouts spotted a faint white light on the horizon in the Caribbean night. The light did not correlate with any radar target. VENTUROUS diverted to investigate, found and rescued five men clinging to the wreckage of their fishing vessel. The faint light came from a survivor's cell phone screen used to signal distress.

Ship Coast Guard will seize the strategic lifesaving initiative.

