



NBSAC Emergency Locator Beacon Resolution Situation Report

Vulnerability of
Fixed VHF Radios in “Wet” Scenarios


RTCM – GMDSS
26 September 2013

Objectives

- Review the Operator-Responder Partnership for Search and Rescue Success
- Refresh/Update ELB Situation
- Address Fixed VHF Vulnerability in “wet”


Accident Scenarios as relates to
NBSAC ELB Resolution

- Highlight “wet” accidents and “wet” accident fatalities in relation to the whole boating accident risk picture
- Suggest treatment options
- Raise awareness and encourage participation in the process
- Encourage progress to save more lives, sooner and at lower cost; strengthen the partnership for SAR success through improved distress-alerting, position-indicating, and active-signaling



Partnership for Search and Rescue Success

- **Search and Rescue success requires a partnership between vessel operators, or “risk takers,” 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
 - **Position-Indicating**. Indicate the distress position—get responders into the ballpark; update, get and keep responder sensors in range of target signals
 - **Active-Signaling**. Actively signal—present a “bigger” electronic/visual profile, be more “visible” to responder sensors, get “seen”—no locate, 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.**



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.

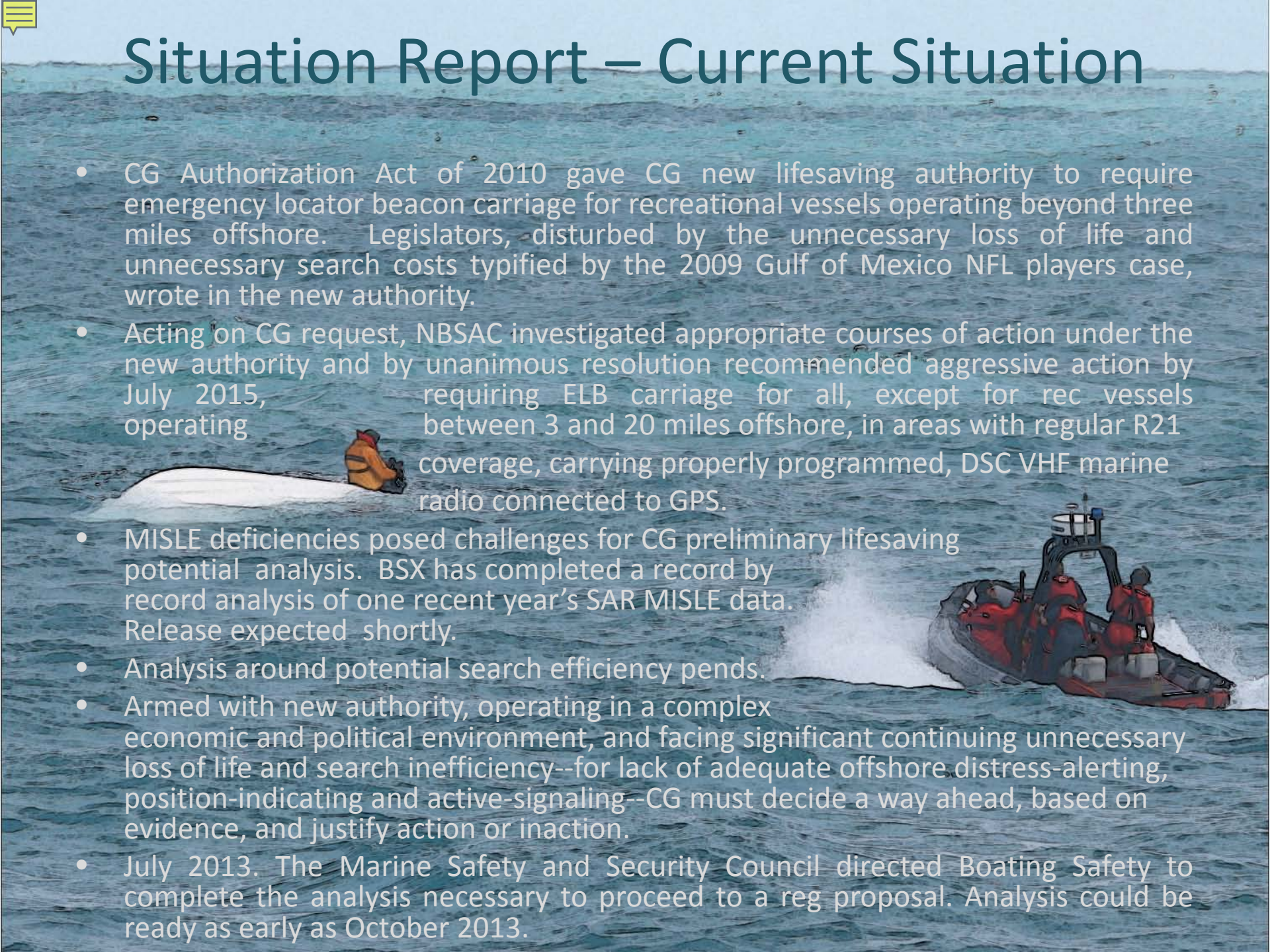
In the context of offshore boating accidents, owners, operators, boat and equipment manufacturers, educators, regulators, enforcers and responders are all partners in reducing the frequency of accidents, and in reducing the severity of accidents ... by action before, during, and after accidents ... at 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. Rec vessels operating offshore require emergency assistance at an estimated rate of between 1 in 150 and 1 in 500 trips.

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.

Situation Report – Current Situation

- 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.
- 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 3 and 20 miles offshore, in areas with regular R21 coverage, carrying properly programmed, DSC VHF marine radio connected to GPS.
- MISLE deficiencies posed challenges for CG preliminary lifesaving potential analysis. BSX has completed a record by record analysis of one recent year's SAR MISLE data. Release expected shortly.
- Analysis around potential search efficiency pends.
- Armed with new authority, operating in a complex economic and political environment, 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.
- July 2013. The Marine Safety and Security Council directed Boating Safety to complete the analysis necessary to proceed to a reg proposal. Analysis could be ready as early as October 2013.



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. 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.

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.
- 2010. DHS directed performance target increase for the top SAR lifesaving measure from 77% to 100% and for the on-scene-within-two-hours standard from 90% to 100% dramatically raised performance bar.

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 circumstances.



Future Plans/Recommendations

- Complete review and release BSX report. Digest BSX analysis. Decide on merits of expanding scope to include additional years for valid sample, including years prior to national financial crisis. Properly account for all expected additional lives saved.
- Conduct appropriate analysis of potential search efficiency. Potential for tens of millions in annual cost avoidance after accounting for false alarm costs.
- 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

- Strong leadership and aggressive awareness raising efforts improve offshore recreational vessel VHF/ELB carriage, SAR effectiveness and efficiency performance, as rulemaking action evaluated.
- A properly deployed, reasonable rule, along lines of NBSAC Resolution, yields search cost avoidance more than offsetting compliance and false alarm costs, more lives are saved at lower public cost. Benefits to affected owners far outweigh very modest costs. 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

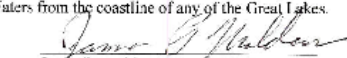
WHEREAS, The National Boating Safety Advisory Council assigned this task to its Boats and Associated Equipment subcommittee; AND

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

1

Fixed VHF Vulnerability in “Wet” Accident Scenarios

Very Recent Cases

ID Date	U S E	NM Off shore	Nature of Distress	L A R	L S	L L	L U F	Means of DA/PI/AS Rule	Initial POSN Uncert (SQNM)	Alert Delay - Incident to Alert	Water Temp F	P F D s	SAR Effect	Elapsed Time Incident to Rescue	Search Effort Cost
Horseshoe Beach JUN 2013	R	9	21' Capsized	4	2	0	2	Float Plan OVERDUE Note 1	100+	12+hrs	NF	Y	50%	20+hrs	\$\$\$ multi sorties
Cedar Key 25 AUG 2013	R	13	26' Disabled @anchor Electrical Failure Capsized	4	4	0	0	EPIRB Note 2	3	Near Zero	NF	Y	100%	2 hrs	\$ 1 H60 sortie
Clearwater Pass 1 SEP 2013	R	8	23' Capsized	4	4	0	0	VHF Fixed Note 3	10	Zero	NF	Y	100%	2 hrs	\$ 1 RBM Sortie

Note 1: Had fixed VHF. Did not use before capsized. Unable to use after capsized.

Note 2: Had VHF and cell phone. Initial problem electrical failure. Compromised fixed VHF. Cell had coverage issues before capsized, worse after. GPS EPIRB afforded reliable, near immediate distress-alerting, accurate position-indicating, excellent active-signaling.

Note 3: Operator able to get off one time MAYDAY without position. R21 localized distress position.

News Release

Date: 01 September 2013

Contact: [D7 PADET CENTRAL](#)

Office: (305) 965-4672

MULTIMEDIA RELEASE: Coast Guard rescues 4 near Clearwater Pass, FL

ST. PETERSBURG, FL — Four people were rescued by the Coast Guard after their 23-foot recreational boat capsized eight miles west of Clearwater Pass, Sunday.

A person aboard the boat contacted [Coast Guard Sector St. Petersburg](#) watchstanders at 9:48 a.m., via VHF-FM radio channel 16, yelling Mayday several times.

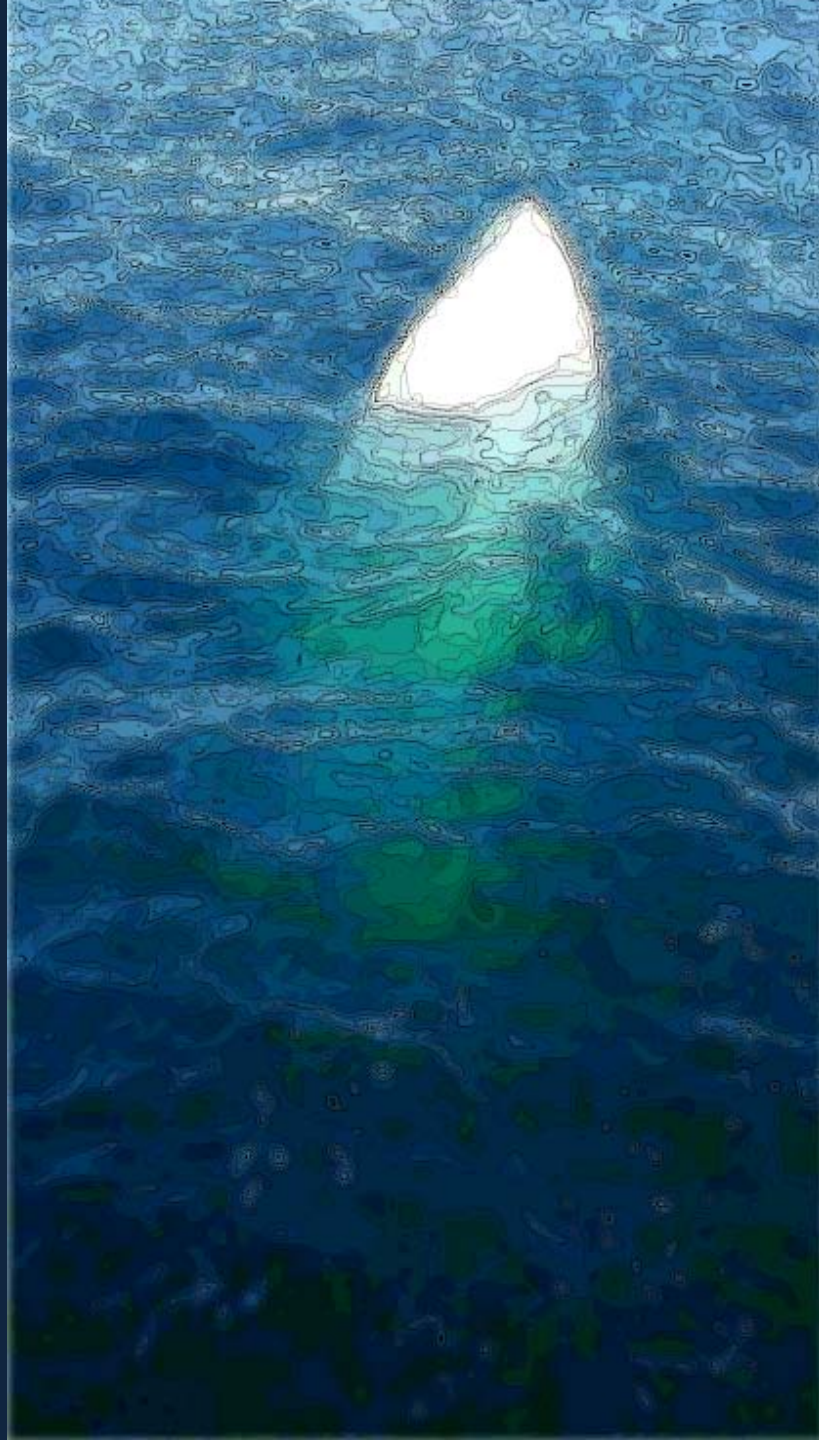
"Using Rescue 21's fixed position we were able to pinpoint the location of distress," said Petty Officer 1st Class Ronnie Leavell, a search and rescue coordinator at the sector.

Sector watchstanders launched a 45-foot Response Boat-Medium crew from [Coast Guard Station Sand Key](#) to the scene of distress. Once on scene, the boatcrew plucked four boaters from the water. Their vessel has been marked as a hazard to navigation, but no pollution concerns have been reported.

"Thankfully, all four were wearing their life jackets," said Leavell. "This case could of turned out much differently if they didn't take proper precautions."

All four were taken to Station Sand Key for a post incident debriefing. No injuries were reported.

Four at risk. Four saved. Distress-alerting, position-indicating by VHF CH 16 through Coast Guard Rescue21 enabling effective, efficient response. Adequate survival capabilities and use—PFDs available and worn. **Window of opportunity for fixed VHF use limited in flooding and capsizing scenario.** Worked this time.





USCG News Release

Date: Aug. 25, 2013

Coast Guard, commercial salvage rescues 4 near Cedar Key, Florida

ST. PETERSBURG — The [Coast Guard](#) along with commercial salvage rescued four people approximately 13 miles west of Cedar Key Saturday.

Watchstanders at [Coast Guard Sector St. Petersburg](#) received an [emergency position indicating radio beacon](#) alert at 8:41 PM plotting in rough weather area.

An MH-60 Jayhawk helicopter crew from [Air Station Clearwater](#) acquired the beacon signal, flew direct to the source and located a swamped boat, with four people clinging to the hull.

The Jayhawk lowered a rescue swimmer to check the status of the people. Sea Tow arrived on scene, removed all four people from the water and transported them back to Cedar Key.

"The Coast Guard wants to remind boaters to always check the weather before leaving the dock," said Petty Officer 2nd Class Omar Arrieta, a search and rescue watchstander at the sector. "Weather can deteriorate very quickly. Always have life jackets and proper safety equipment aboard your vessel, like an EPIRB and a VHF-FM radio, so if you are caught in severe weather, the Coast Guard can assist you quickly."

Four at risk. Four saved. Good distress-alerting, position-indicating, active-signaling, survival preparedness. Beyond cell coverage. Before swamped attempted to contact SEA TOW by VHF without success. Raised CG STA YANKEETOWN VHF to request SEA TOW assistance. As swamping, called MAYDAY on VHF without effect. Effective distress-alerting, position-indicating, active-signaling by EPIRB enabled effective, efficient response. PFDs available and worn.

See survivor notes/debrief below.

Compare this case to the March 2009 NFL Players case summarized at the next slide.

- Both cases involved similar rec vessels operating offshore in GOM from Florida west coast. Both with four persons onboard. Both at anchor. Both capsized. One had an ELB; one didn't.
- Distress-Alerting. Near immediate alerting by EPIRB v. about a half day delay by overdue report triggered by non-return.
- Position-Indicating. Position with uncertainty of a few square miles v. many hundreds of square miles. Position regularly updated v. no update.
- Active-Signaling. 406 and 121.5MHz signals that response aircraft can home on v. no active signaling.
- Outcome Effectiveness. Four at risk; four saved v. four at risk; one saved, three missing and presumed dead.
- Outcome Efficiency. One CG helo sortie and one commercial assistance sortie, no search v. fifty sorties, massive, multi-day search. Modest cost [thousands] v. massive cost [many hundreds of thousands].



From *Oprah* book segment with survivor, Nick Schuyler

Nick says one of the reasons he wrote *Not Without Hope* was to **help others avoid making life-threatening mistakes.**

Here's what the Coast Guard says everyone should take away from his story:


"The best thing to come out of this tragic case may be the lessons that other boaters can learn. Boaters should always **leave a 'Float Plan'** with someone ashore—including a description of the boat, names of the people onboard, where exactly they are going, and when they are expected back.

Boaters should always **wear lifejackets.**

Additionally, **every boat [operating offshore] should carry an Electronic Position Indicating Radio Beacon (EPIRB).** An EPIRB will broadcast an exact position via satellite to rescue centers.

Further, **visual distress signals such as flares, strobe lights and even flashlights can be critical in helping the Coast Guard find** someone in need of assistance.

Lastly, boaters are strongly encouraged to **take boating safety classes** available from a number of sources for minimal cost."



16 June 2013

ST. PETERSBURG, Fla. -- The Coast Guard and Florida [Fish](#) and Wildlife Conservation Commission crew, rescued two of four men that went missing near Horseshoe Beach Saturday night, according to a release by the USCG.

Mrs. Tom Grant contacted Coast Guard Sector St. Petersburg around 11:25 p.m. Saturday night, stating that she was expecting a [phone call](#) from her 67 year old husband before dark and never received one. She reported that the boat left Horseshoe Beach Boat Ramp around 7:30 a.m. Saturday morning.

On Sunday morning, the Coast Guard Air Station Clearwater C-130 crew spotted boaters in the water along with their capsized 21-foot boat.

The men were nine miles west of Horseshoe [Beach](#) according to details of the report.

The men that were rescued were Frank Dipaula, 78, of Keystone Heights, and Tom Grant who were both wearing life jackets.

FWC assisted in the recovery, removing Dipaula and Grant from the water, who were reported disoriented and exhausted.

Tom Morrison, 65 of Jacksonville, and Glenn Harris, late seventies are still missing.

Four at risk. Two saved. Two missing. Sudden capsized precluded use of fixed VHF. No ELB. Alert by overdue report. Unnecessary loss of life. Unnecessary search costs.

News Release

Date: 01 October, 2013

Coast Guard, [VHF radio and] life jackets save 12 after sailboat sinks off Texas coast

A Coast Guard Station Freeport boatcrew pulls 12 people from the water about 15 miles offshore and returns them to safety. U.S. Coast Guard photos and video. [Aerial video](#) of the people in the water is also available on the [Defense Video and Imagery Distribution System](#). HOUSTON — Coast Guard boat and helicopter crews rescued 12 people after their 60-foot catamaran began taking on water and sank Tuesday, [14 miles off Freeport](#).

The master of the catamaran, Reef Man, made a Mayday call on VHF channel 16 at 9:10 a.m. and reached watchstanders at Sector Houston-Galveston. The watchstanders lost contact shortly after and launched rescue crews aboard an [MH-65 Dolphin helicopter](#) from [Air Station Houston](#) and a [45-foot Response Boat — Medium](#) from [Station Freeport](#).

The aircrew arrived on scene at 9:45 a.m. to find the catamaran had completely sunk and the people were wearing their lifejackets, floating in the water. They deployed the rescue swimmer to assist them. The boatcrew arrived minutes later and the rescue swimmer began swimming each person to the Coast Guard boat.

"These situations are exactly what we train for," said Petty Officer 3rd Class Paul Wiedenhoeft, the helicopter's rescue swimmer. "As I came to the door and saw all the people in the water, it was at that point where all the training started to kick in. I just jumped in the water and started swimming."

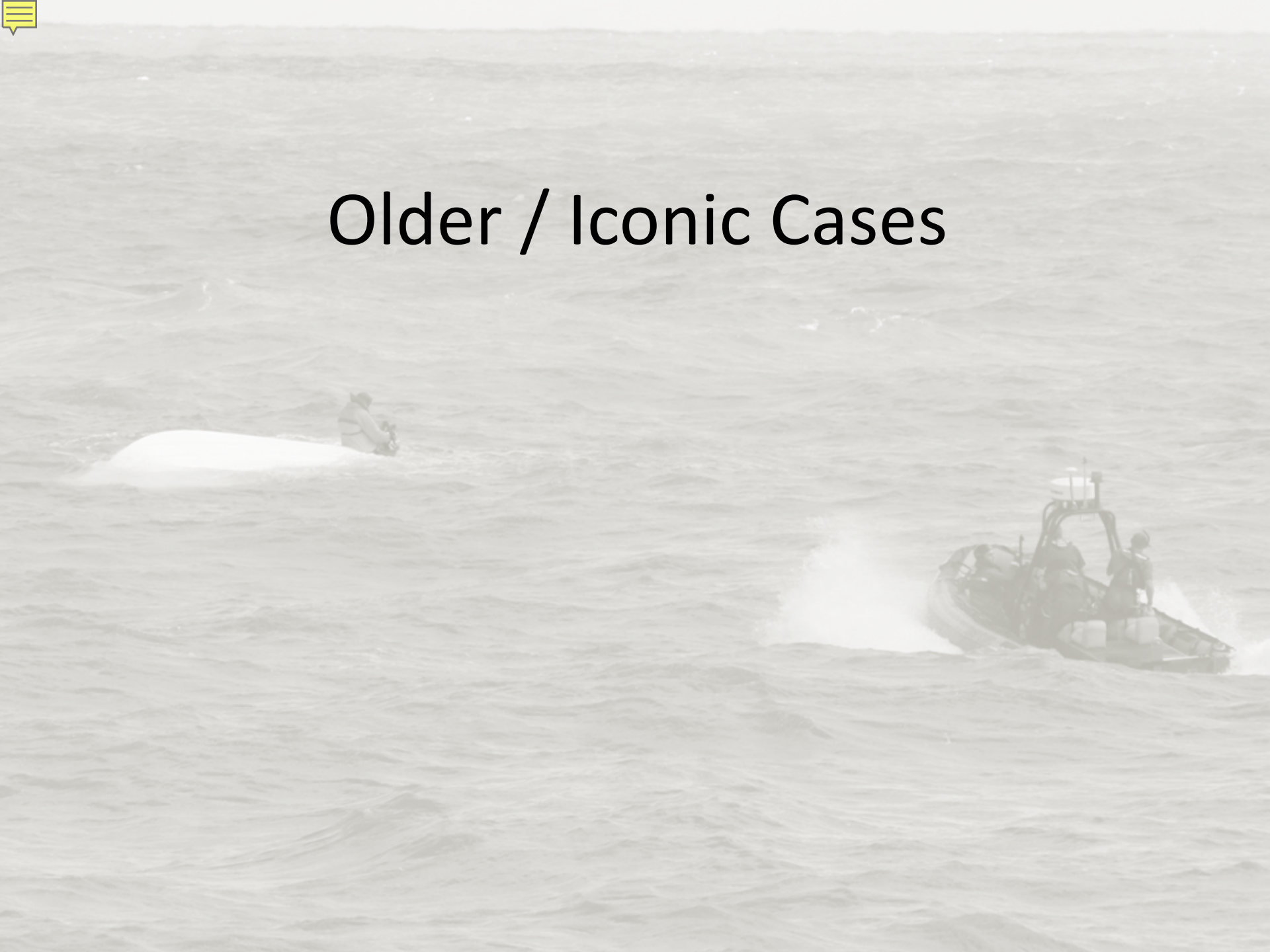
The Coast Guard urges all mariners to have the proper safety equipment. In instances like this one, having a VHF-FM marine band radio and lifejackets can mean the difference between life and death.

Twelve at risk. Twelve saved. Effective, efficient rescue enabled by VHF distress alerting and position indicating. PFDs available and worn. VHF radio failed shortly after initial contact.





Older / Iconic Cases





ID Date	USE	NM Off shore	Nature of Distress	LAR	LSL	LUF	Means of DA/PI/AS Rule for Modern Alerting	Initial POSN Uncert SQNM	Alert Delay	Water Temp F	PFDs	SAR Effect	Elapsed Time Incident to Rescue	Search Effort Cost	
South Pass Five FEB '10	R	3	25' Capsized	5	1	4	0	None Happened Upon by OSV None	NA	NA	52	Y	20%	5 hrs	0
NFL MAR '09	R	40 off Tampa	21' Capsized	4	1	0	3	Float Plan OVERDUE None	1000	12+hrs	65	Y	25%	40+hrs	\$\$\$\$\$ 50 sorties
Marco Island MAY '91	R	20	18' Disabled Adrift	4	4	0	0	Float Plan OVERDUE None	500	24+hrs	NF	N	100%	120+hrs	\$\$\$\$\$ 41 sorties
Patricia Ann MAY '91	C	130 NW of Tampa	Sunk	3	3	0	0	406MHz EPIRB CFVSA '88	5	minutes	NF	N	100%	2.5 hrs	\$ 1 H3 sortie
HOO LOO DEC '83	R	45 off Govt Cut	21' Capsized	4	3	1	0	Flares/ OVERDUE None	10/1000	12/48 hrs	60	N	75%	90+hrs	\$\$\$\$ Many sorties
Anthony Latham MLB OCT '83	R	10 off Boca Grande	17' Capsized	4	2	1	1	Whistled down passing FV None	NA	22 hrs	75	N	50%	22 hrs	\$\$\$\$ Many sorties

11 March 2012
U.S. Coast Guard
News Release

Coast Guard locates capsized boat; 3 bodies recovered

SAN PEDRO, Calif. - The Coast Guard located a capsized 24-foot recreational boat near Santa Cruz Island, Calif., about 1 p.m. Sunday.

At approximately 9 AM, a family member of one of the four men aboard the boat reported the group OVERDUE to the Channel Islands Harbor Patrol. The men had departed the mainland the previous morning for an offshore day fishing trip to the north side of Santa Cruz Island. CIHP contacted Coast Guard Sector Los Angeles-Long Beach command center to initiate the search and rescue case.

The Coast Guard launched a 47-foot motor lifeboat from Station Channel Islands Harbor, the Coast Guard Cutter Halibut, and a MH-65 Dolphin helicopter from Air Station Los Angeles to search for the men. A Santa Barbara County Sheriff Department helicopter and the Santa Cruz Island Park Rangers also assisted in the search efforts.

Three of the men's bodies have been recovered as the search continues for the fourth missing man.

Four at risk, three lives lost, one missing. Unnecessary loss of life, unnecessary search effort, unnecessary risk for apparent inadequate distress-alerting, position-indicating, active-signaling and survival preparedness and performance. Water temperature about 56F. Expected survival time for unprotected persons just a few hours. These men likely perished before reported overdue.

An emergency locator beacon and some form of cold water protection could have almost certainly saved these men. Lifejackets provide little protection against cold water.

0 50 km

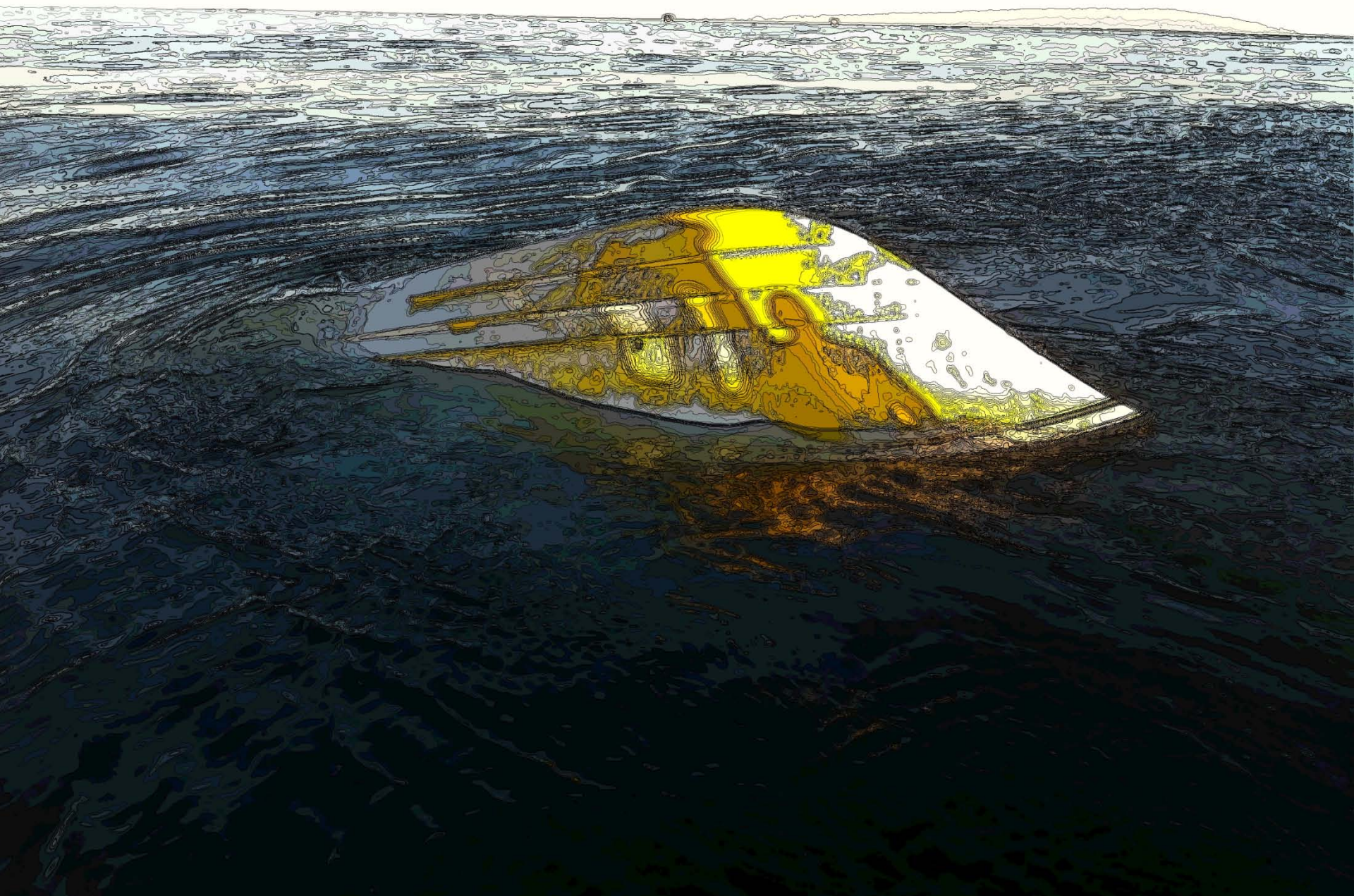


FEB 2011

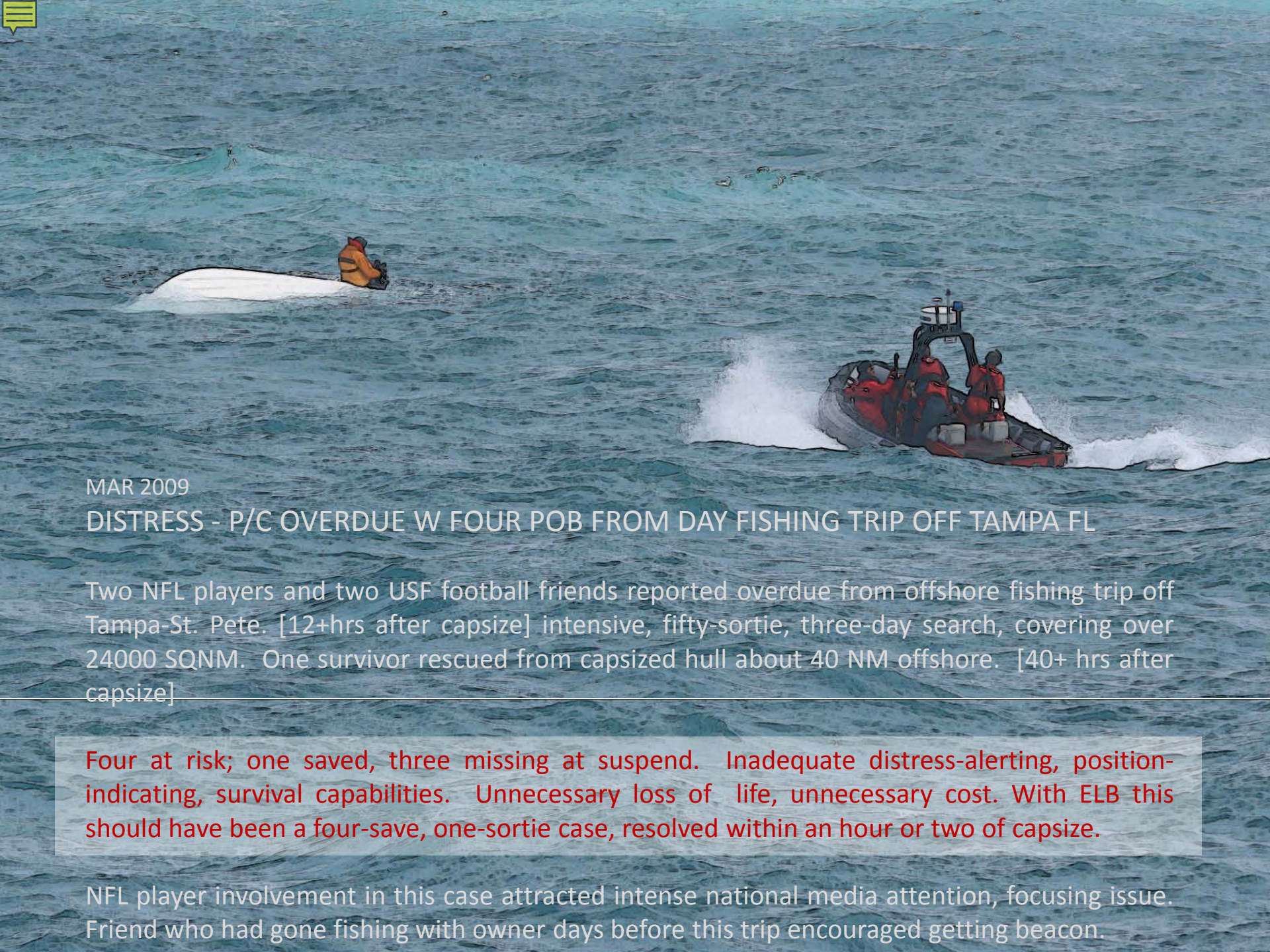
DISTRESS - 25' P/C CAPSIZED W FIVE POB 3NM OFF SOUTH PASS LA

Departed Venice, LA early morning to fish 12 mile rig line in Gulf. Flooded and capsized about 0800, three miles offshore. Discovered at about 1300 by passing offshore supply vessel SEA ANGEL. One survivor on hull. Bodies of other four recovered nearby. Water temp 52 F.

Five at risk; one life saved; four lives lost. Inadequate distress-alerting, position-indicating, survival capabilities. Fixed VHF onboard. MAYDAY call made after flooding detected, before capsized without effect. PFDs accessible, but not worn. Obtained just before capsized, not able to don in water, but used for flotation. Insufficient protection against cold water.







MAR 2009

DISTRESS - P/C OVERDUE W FOUR POB FROM DAY FISHING TRIP OFF TAMPA FL

Two NFL players and two USF football friends reported overdue from offshore fishing trip off Tampa-St. Pete. [12+hrs after capsized] intensive, fifty-sortie, three-day search, covering over 24000 SQNM. One survivor rescued from capsized hull about 40 NM offshore. [40+ hrs after capsized]

Four at risk; one saved, three missing at suspend. Inadequate distress-alerting, position-indicating, survival capabilities. Unnecessary loss of life, unnecessary cost. With ELB this should have been a four-save, one-sortie case, resolved within an hour or two of capsized.

NFL player involvement in this case attracted intense national media attention, focusing issue. Friend who had gone fishing with owner days before this trip encouraged getting beacon.

20 MAY 1991

DISTRESS-18' OUTBOARD OVERDUE FROM DAY FISHING TRIP W FOUR POB 20NM OFF MARCO

20 MAY 1430. Concerned family member reported group overdue from 19 May trip to return before dark. Three adult males, one male child. Probable destination towers about 20 NM offshore. 1973 18' runabout recently acquired, history of engine problems. Seas 6-8. Winds 20-30 KTS. VIS 4NM, near zero in local squalls. Weather conditions deteriorating.

DELTA 23 MAY

VSL LOCATED 23 MAY 11:37 A.M.

ACTION TAKEN.

20 MAY. ISSUED UMIB. CGAS MIA HU-25, CGAS CLRWTR H-3 and STA FT MYERS boats searched over 1000 SQNM before dark in poor conditions with no sightings of interest.

21 MAY. CGAS CLRWTR C-130s and H-3s, CGAS MIA HU-25s and H-65s, NAS Key West H-3s flew 18 sorties covering 6000 SQNM. Difficult search conditions, no sightings of interest.

22 MAY. USCG and USAF C-130s and USCG helos flew 12 sorties covering 6500 SQNM. Poor on scene weather, no sightings of interest.

23 MAY. WX improved. USAF and USCG C-130s and CG HU-25s and H-3s flew 8 sorties planned to cover 6500 SQNM. Shortly before noon a CGAS CLRWTR C-130 located the 18' outboard disabled adrift about 90 NM west of Fort Myers, over 100 NM from their reported fishing destination.

VSL DISABLED 19 MAY MIDDAY

ALPHA 20 MAY

BRAVO 21 MAY

Four at risk. Four saved. Inadequate distress-alerting, position-indicating, active-signaling preparedness and performance. Massive four day search effort, covering almost 20,000 SQNM at a public cost of between \$500K and \$1M in 1991 dollars. Unnecessary risk and unnecessary cost.

9 MAY 1991

DISTRESS – 406MHz ALERT 36' F/V PATRICIA ANN 130 NM NW OF TAMPA

INITIAL REPORT: 9 MAY 91. 8:21 AM. Coast Guard Rescue Coordination Center (RCC) Miami received a 406 MHz EPIRB alert via the search and rescue satellite (SARSAT) system. The 406 "satellite" beacon first alert provided an accurate distress position, the name and description of the distressed vessel - PATRICIA ANN, a 36 foot fishing vessel, and the names and phone numbers of two shore side points of contact.

SITUATION: F/V PATRICIA ANN in apparent distress 130 nautical miles (NM) northwest of Tampa.

WEATHER: Seas: 6-8 FT. Winds: 15-20 KTS. Visibility: 10 NM.

INITIAL POSITION UNCERTAINTY: Alert position accurate to within 3 NM. Area less than 10 SO NM.

ACTION TAKEN:

8:38 AM RCC Miami called shore side points of contact. Owner confirmed PATRICIA ANN was fishing near alert position. Owner reported no recent communications. Owner attempted communications without success.

8:49 AM RCC Miami launched Coast Guard Air Station Clearwater's ready rescue helo.

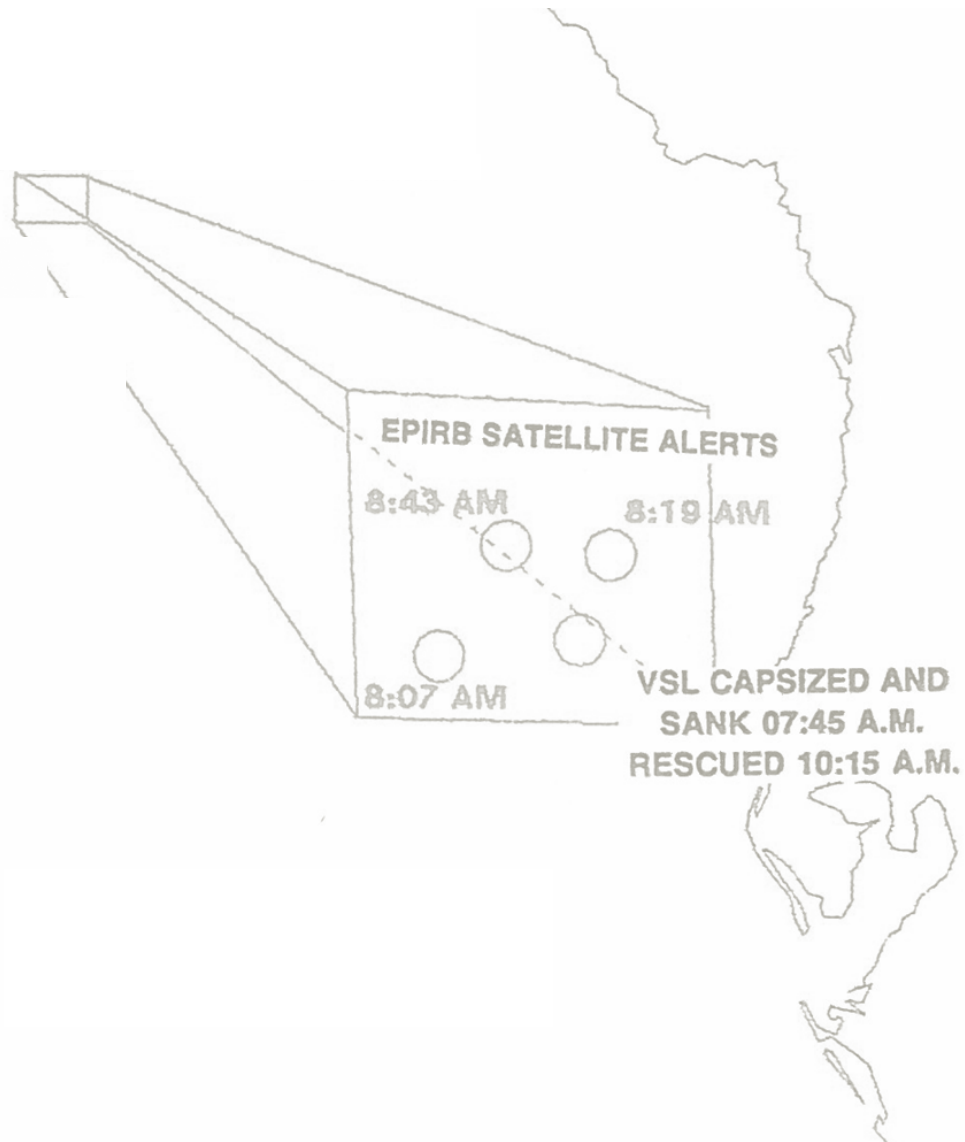
9:15 AM Rescue 1486 airborne en route distress position 110+ NM away. Aircrew acquired satellite beacon's 121.5 MHz homing signal almost immediately.

Rescue 1486 overflow the signal source twice as indicated by helo direction finder's 180 degree needle swings.

10:00 AM Rescue 1486 sighted two men clinging to a hatch cover in the 6-8 FT seas. Within minutes the helo crew spotted another man with a life-ring and the EPIRB.

10:15 AM Rescue 1486 safely hoisted all three crewmen.

11:10 AM Rescue 1486 safely delivered the three to CGAS Clearwater.



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. Pre-dawn, WHITE PINE's watch detected an intermittent radar target just a few miles out. The Officer of the Deck reported the sighting 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.

Four at risk. Three saved. One life lost. Inadequate distress-alerting, position-indicating, active – signaling. Good survival capability in form of wet suits. Positive flotation hull enabled radar detection and provided survival resource.

The Associated Press

2 November 1983

Baseball Players Rescued from Gulf, But Two Still Missing

DATELINE: PUNTA GORDA, FL

Two professional baseball pitchers were rescued after spending 20 hours bobbing in the Gulf of Mexico, but a search resumed today for two other men tossed into the water when their boat sank.

Treated for exposure and released from a Punta Gorda hospital after they were found Monday were John Mitchell, 18, of Nashville, Tenn., and Scott Skripko, 22, of Hampton, N.J., both pitchers with the Winston-Salem Red Sox of the Class A Carolina League, a Boston Red Sox farm team.

The search continued today for another team member, Tony Latham, 20, of Robersonville, N.C., and Mark Zastrowmy, 35, of Punta Gorda, owner of the boat which was swamped while the four were trying to retrieve a cap which had blown into the water.

Search crews from the U.S. Coast Guard, the Florida Marine Patrol and the Charlotte County sheriff's office continued combing the Gulf waters for the other two.

Mitchell and Skripko said they saw fishing boats while bobbing in the water, but it was not until nearly 12:30 Monday when Skripko, clutching the cooler, saw fishermen 150 yards away and was able to attract their attention with whistles.

**Four at risk. Two saved after more than 20 hours in the water. Two missing at suspend.
Inadequate alerting, position-indicating, active-signaling, survival capabilities.**

Sports Illustrated revisited this story on 4 March 2009, on the heels of the NFL player accident in the Gulf. Tony Latham was an extraordinary young man. He would be 50 now.

Copter Saves Family A Day After Boat Sank

12 November 1985 | By John J. Glisch of The Sentinel Staff

COCOA — Four members of a family who survived nearly 24 hours in 5-foot seas after their pleasure boat sank Sunday off Palm Beach were rescued early Monday 50 miles off the coast of Melbourne.

The four were plucked from the ocean by a Coast Guard helicopter at 8:18 a.m. and flown to Patrick Air Force Base, where they were treated for exposure but otherwise given a clean bill of health, said Air Force Dr. Paul Ebbert.

"They were weak and tired and worn out but all things considered they are amazingly well," he said.

Coast Guard officials said the four drifted more than 80 miles from where their 45-foot boat YORKIE EXPRESS went down Sunday morning. The water temperature was about 75 degrees.

"As we flew by they waved at us," said Lt. Fred Pendleton, pilot of the rescue helicopter. "They had life jackets on and were hanging on to what looked like a fish box, maybe 5 feet long.

The owner of the boat, Robert Wood, 59, of Jupiter, and his wife, Lois, 58, were in fair condition Monday night at the Patrick Air Force Base hospital.

Spokesman Sgt. Charles Miller said doctors would keep the couple overnight before transferring them to a hospital in Jupiter.

Miller said the couple's daughters, Nancy Nadeau, 35, of Killingsworth, Conn., and Karlen Peterson, 34, of Bloomfield, were released after treatment.

Ebbert said the family had no idea what caused the boat to sink. "They said it took on water and went down quick," he said.

Coast Guard Lt. Kim Rose said the Woods and their daughters left Jupiter Inlet Sunday morning for a trip to the Bahamas. About 30 miles out the boat hit a large wave, lost its rudder and started taking on water.

"They were going full blast and were all up on the bridge," said Coast Guard Petty Officer Joseph Dye. Wood "felt the boat was sluggish and went down to the engine room to look and it was flooded. It went down in two and a half minutes."

Officials said the Woods sent out a distress call that was picked up by a nearby Coast Guard cutter about 9:30 a.m.

A pair of Falcon jets, two helicopters and a C-130 plane were dispatched from Miami and Clearwater to hunt for the boat, officials said.

The aircraft searched 5000 square miles of the Atlantic Ocean between Lake Worth and Freeport, Bahamas, during daylight Sunday. The search resumed at dawn Monday.

Four at risk, four saved after a day adrift in the gulf stream, drifting almost 100 miles. Lucky. Unnecessary risk, unnecessary cost. Inadequate distress-alerting, position-indicating, active-signaling. VHF MAYDAY call made from about 30 miles offshore copied only by CGC POINT BARNES, with "two hours out of West Palm" position. With beacon, one and done.

Mr. Wood became an effective advocate for 406MHz emergency beacon use.



The New York Times

Family of Correspondent Rescued in the Caribbean

UPI

Published: August 15, 1982

MIAMI, Aug. 14— The wife and two children of an NBC News science reporter, Robert Bazell, were rescued this evening by the crew of a Japanese tanker after they had been missing for three days in the Caribbean, Grand Cayman Island authorities said.

Mr. Bazell's wife, Margot, 40 years old, his son, Joshua, 12, and his daughter, Rebecca, 14, were reported in good condition.

They were to be put ashore on Grand Cayman Island. The Coast Guard in Miami said the family was found drifting about 40 miles southeast of Grand Cayman Island, about 150 miles south of Cuba.

Mr. Bazell's family had been missing since Wednesday evening, and had been the subject of an intense search by a Coast Guard cutter and Coast Guard, Navy and Air Force search planes.

The family's 14-foot aluminum boat ran out of gas late Wednesday while Mr. Bazell and his family were about two miles from the Grand Cayman Island, where they had been vacationing.

Mr. Bazell, 37, swam to shore to get help, but when he returned in a larger vessel the small boat, which carried no food or water, had drifted out to sea.

Three at risk; three lives saved ... after three days adrift. Near miss.

Inadequate distress-alerting, position-indicating, active-signaling, survival capabilities.

Unnecessary risk, unnecessary cost.




Overview By Alerting Capability*

	I n s t a n c e s	Avg NM Offshore	L A R	L S	L L	L U F	Avg Initial POSN Uncert SQNM	Avg Alert Delay	SAR Effect	Avg Elapsed Time Incident to Rescue	Avg Search Effort Cost
ELB	2	70	7	7	0	0	3	minutes	100%	2hrs	\$ 1 sortie
VHF Fixed	4	15	17	8	4	5	>300	8 hrs	47%	16 hrs	\$\$\$
Float Plan/ OVERDUE/ Non- electronic	3	11	12	9	2	1	>750	18 hrs	75%	74 hrs	\$\$\$\$+

* greatest capability carried





One Hell Of A Night At Sea

By Daniel David Jones Illustrations by: Wesley Allsbrook

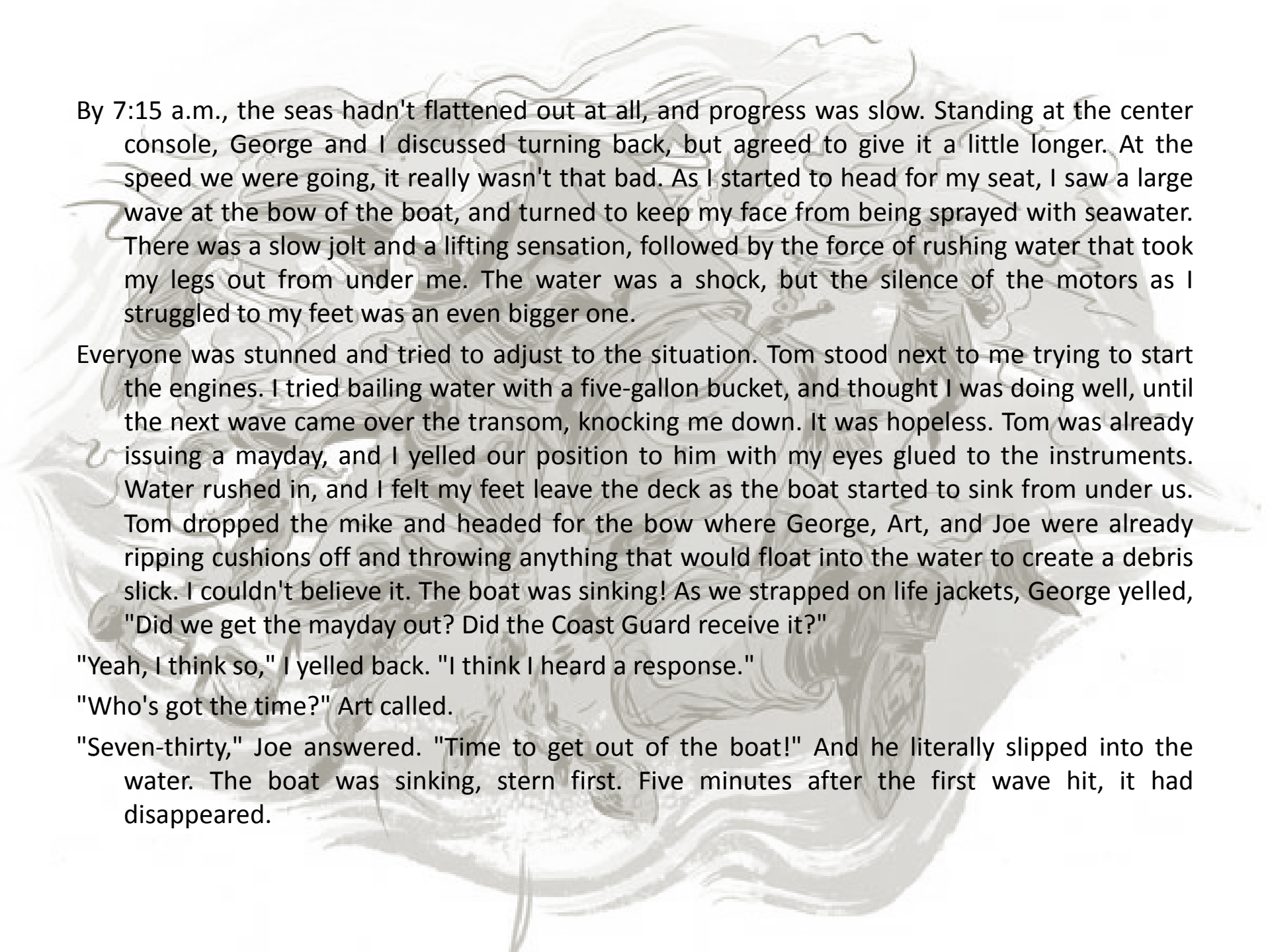
Published: BoatUS Magazine February/March 2013

A fishing trip off the New Jersey coast goes very wrong when five friends have to abandon ship, fast.

Our fishing trip has been planned for weeks and started off without a hitch. There were five of us, all seasoned fishermen and good buddies, heading out to fish for tuna in the canyons off the coast of New Jersey. It was the first canyon trip for this particular boat, a 32-foot Scorpion powered by 100-horse twin outboards. The boat — an offshore racer geared up for big-game fishing — belonged to my friend George. It was the fastest boat I'd ever been on. On a normal canyon trip out of Ocean City, New Jersey, there's an average running time of about three-and-a-half hours to the fishing grounds, which are located about 60 miles out. With George's boat, we could be at the canyons in about an hour-and-a-half, adding four more hours of fishing time to our trip. It was still dark when we got underway at 5:30 a.m. The forecast called for offshore winds in the morning, tapering off with the seas dropping to less than two feet during the day. It would be calm for the first 15 to 20 miles of the trip, then we'd hit rough seas once we got offshore, which would flatten out as the day progressed.

The Situation Hits The Fan





By 7:15 a.m., the seas hadn't flattened out at all, and progress was slow. Standing at the center console, George and I discussed turning back, but agreed to give it a little longer. At the speed we were going, it really wasn't that bad. As I started to head for my seat, I saw a large wave at the bow of the boat, and turned to keep my face from being sprayed with seawater. There was a slow jolt and a lifting sensation, followed by the force of rushing water that took my legs out from under me. The water was a shock, but the silence of the motors as I struggled to my feet was an even bigger one.

Everyone was stunned and tried to adjust to the situation. Tom stood next to me trying to start the engines. I tried bailing water with a five-gallon bucket, and thought I was doing well, until the next wave came over the transom, knocking me down. It was hopeless. Tom was already issuing a mayday, and I yelled our position to him with my eyes glued to the instruments. Water rushed in, and I felt my feet leave the deck as the boat started to sink from under us. Tom dropped the mike and headed for the bow where George, Art, and Joe were already ripping cushions off and throwing anything that would float into the water to create a debris slick. I couldn't believe it. The boat was sinking! As we strapped on life jackets, George yelled, "Did we get the mayday out? Did the Coast Guard receive it?"

"Yeah, I think so," I yelled back. "I think I heard a response."

"Who's got the time?" Art called.

"Seven-thirty," Joe answered. "Time to get out of the boat!" And he literally slipped into the water. The boat was sinking, stern first. Five minutes after the first wave hit, it had disappeared.

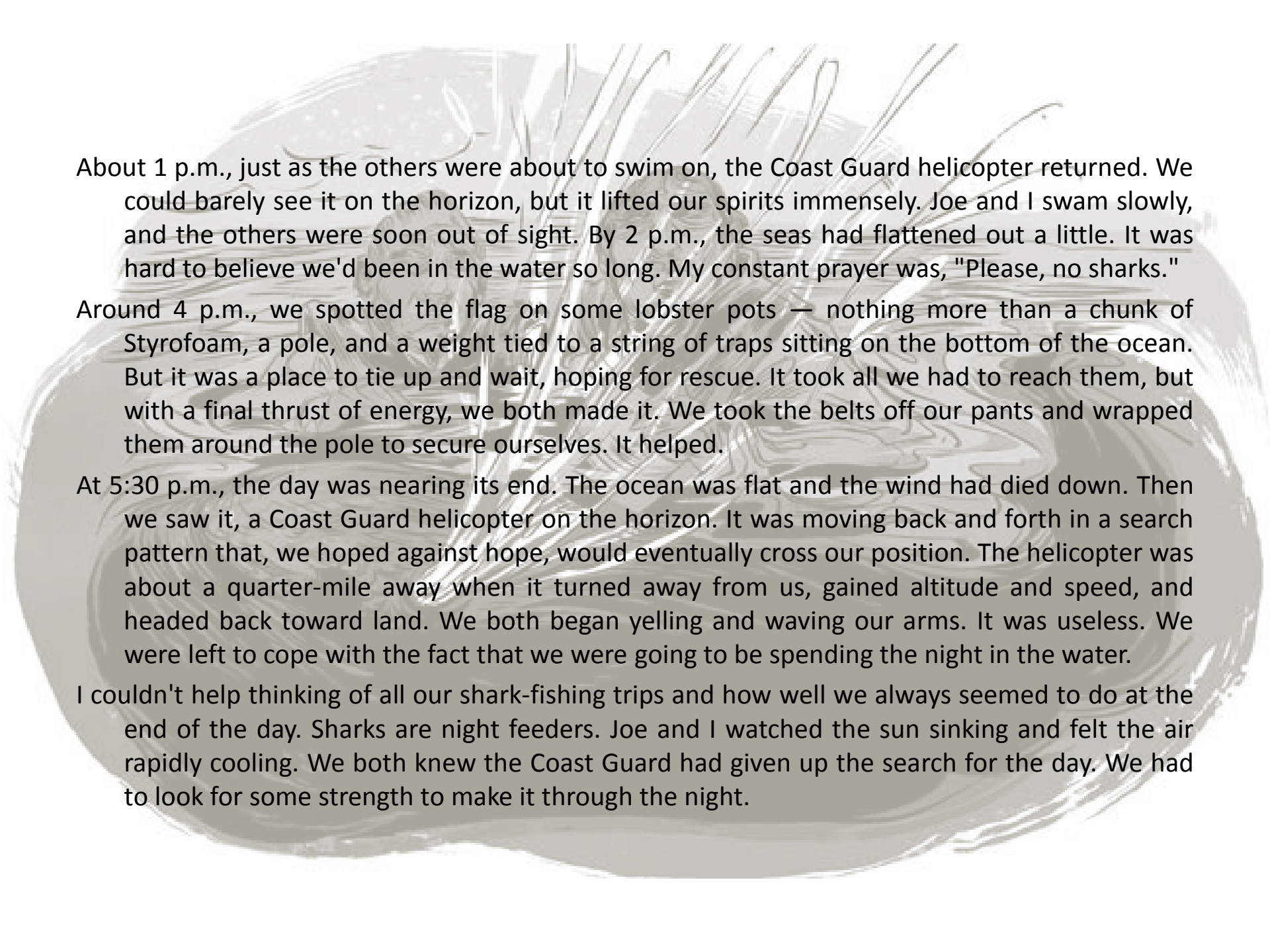
"Please, Let Us Get Rescued Soon"

We floated for three hours amid the debris from the boat, including 100 pounds of butterfish from the deck fish box. No one mentioned sharks, but all I had to do was look down at my feet, watching the sun's rays disappear into the blue darkness of the ocean, and panic crept in. At 10:15 a.m., we suddenly spotted our first sign of hope, a Coast Guard helicopter on the horizon. We loaded the flare gun and waited for the right moment to shoot it off. We fired the first flare then started yelling and waving our arms as the helicopter flew so close we could see the identification numbers on its side. With a dull "pop," we sent our second flare screaming up over our heads. After about 30 seconds, we all started yelling, "Shoot another flare! Hurry, they missed it!" Within seconds, the third and last flare popped off. The helicopter just continued past us. Our spirits were low, but at least we knew they were looking for us.

We decided to start swimming back, hoping a sportfishing boat would spot us, but after swimming for two hours, we realized we were getting separated. Several times, we stopped and waited for the waves to lift us up to locate each other. At some point, we all pulled together to make sure everyone was OK. Joe, who was the oldest, was losing his color. "I'm sorry, guys, I can't make it," he said, finally. "Go on without me, and just send help back for me." I could see that even if we stopped and rested awhile, he probably wouldn't be able to regain his strength enough to keep up with us. I decided to stay back with Joe.

Can Things Get Any Worse?



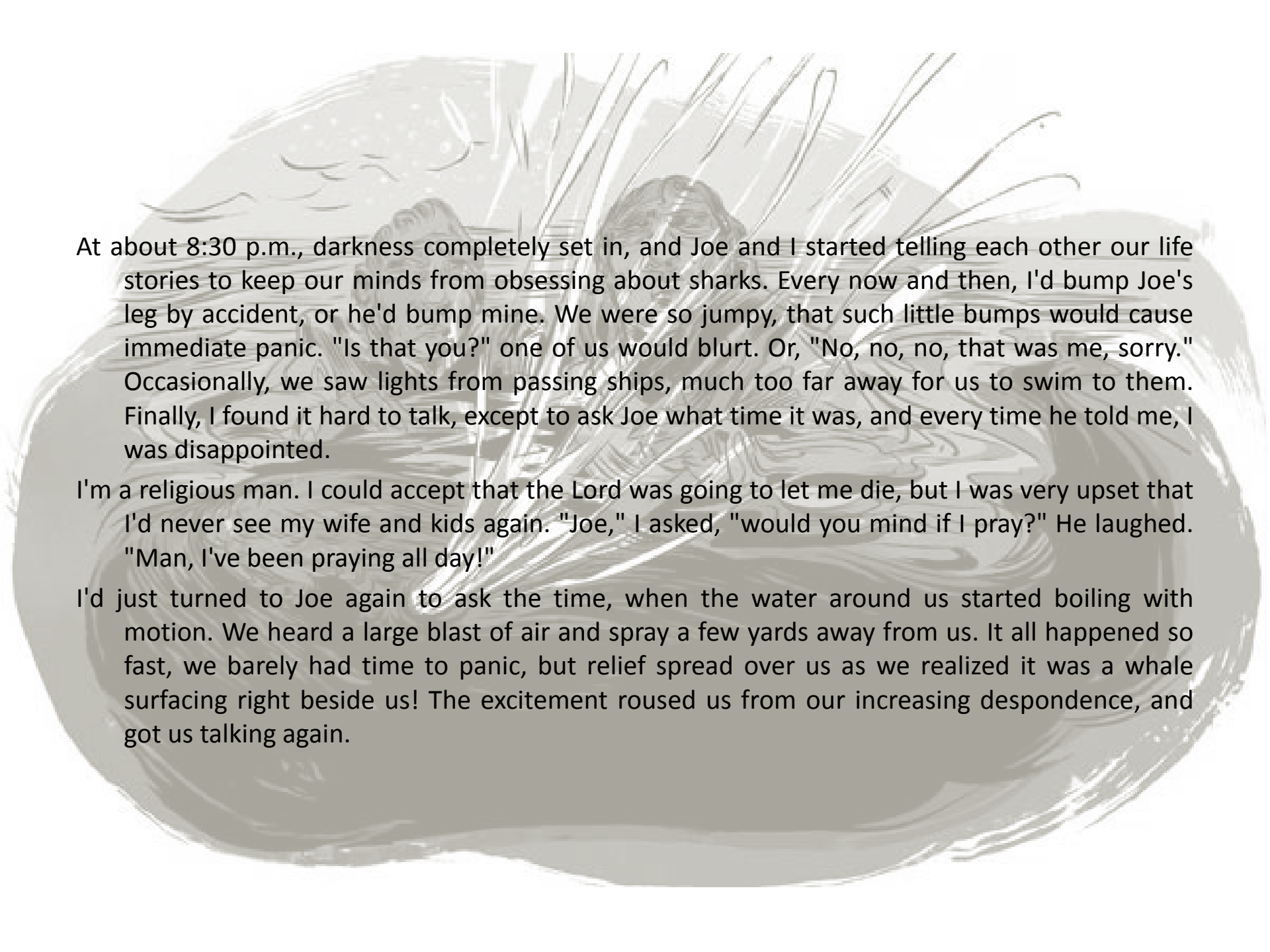


About 1 p.m., just as the others were about to swim on, the Coast Guard helicopter returned. We could barely see it on the horizon, but it lifted our spirits immensely. Joe and I swam slowly, and the others were soon out of sight. By 2 p.m., the seas had flattened out a little. It was hard to believe we'd been in the water so long. My constant prayer was, "Please, no sharks."

Around 4 p.m., we spotted the flag on some lobster pots — nothing more than a chunk of Styrofoam, a pole, and a weight tied to a string of traps sitting on the bottom of the ocean. But it was a place to tie up and wait, hoping for rescue. It took all we had to reach them, but with a final thrust of energy, we both made it. We took the belts off our pants and wrapped them around the pole to secure ourselves. It helped.

At 5:30 p.m., the day was nearing its end. The ocean was flat and the wind had died down. Then we saw it, a Coast Guard helicopter on the horizon. It was moving back and forth in a search pattern that, we hoped against hope, would eventually cross our position. The helicopter was about a quarter-mile away when it turned away from us, gained altitude and speed, and headed back toward land. We both began yelling and waving our arms. It was useless. We were left to cope with the fact that we were going to be spending the night in the water.

I couldn't help thinking of all our shark-fishing trips and how well we always seemed to do at the end of the day. Sharks are night feeders. Joe and I watched the sun sinking and felt the air rapidly cooling. We both knew the Coast Guard had given up the search for the day. We had to look for some strength to make it through the night.



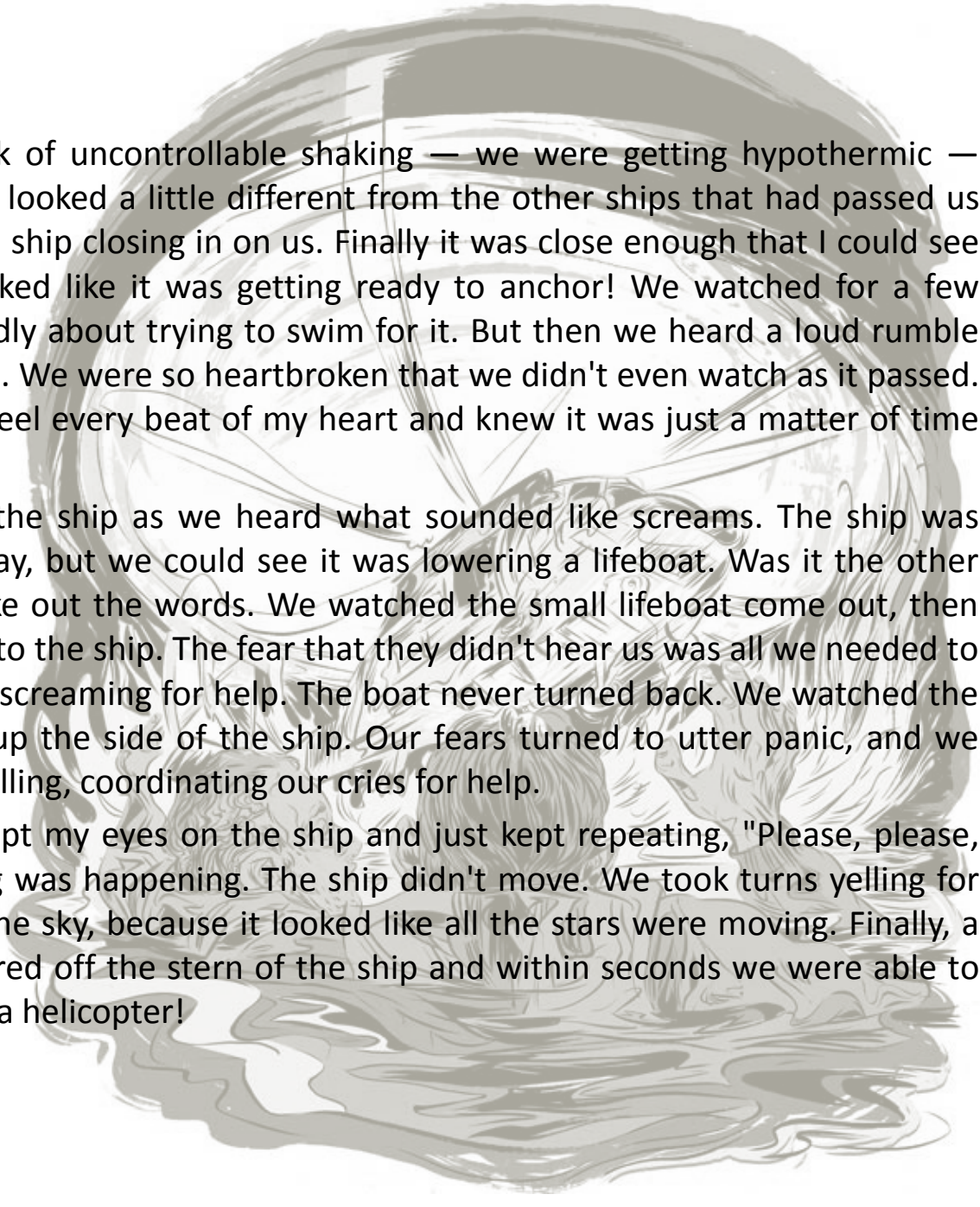
At about 8:30 p.m., darkness completely set in, and Joe and I started telling each other our life stories to keep our minds from obsessing about sharks. Every now and then, I'd bump Joe's leg by accident, or he'd bump mine. We were so jumpy, that such little bumps would cause immediate panic. "Is that you?" one of us would blurt. Or, "No, no, no, that was me, sorry." Occasionally, we saw lights from passing ships, much too far away for us to swim to them. Finally, I found it hard to talk, except to ask Joe what time it was, and every time he told me, I was disappointed.

I'm a religious man. I could accept that the Lord was going to let me die, but I was very upset that I'd never see my wife and kids again. "Joe," I asked, "would you mind if I pray?" He laughed. "Man, I've been praying all day!"

I'd just turned to Joe again to ask the time, when the water around us started boiling with motion. We heard a large blast of air and spray a few yards away from us. It all happened so fast, we barely had time to panic, but relief spread over us as we realized it was a whale surfacing right beside us! The excitement roused us from our increasing despondence, and got us talking again.

Lights On The Water

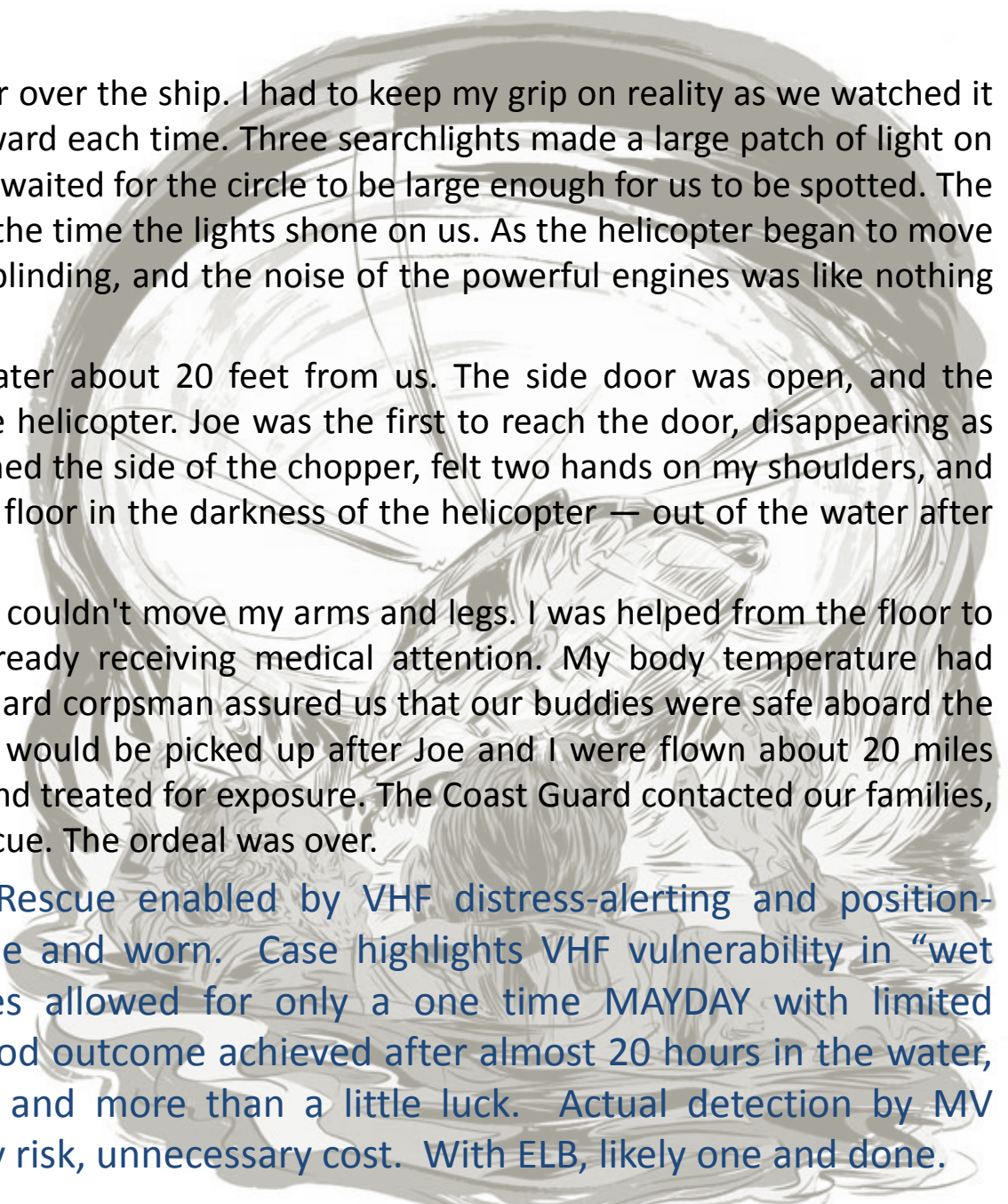




I was kicking off another attack of uncontrollable shaking — we were getting hypothermic — when I saw something that looked a little different from the other ships that had passed us by in the night. There was a ship closing in on us. Finally it was close enough that I could see its deck lights. Then, it looked like it was getting ready to anchor! We watched for a few minutes, then talked excitedly about trying to swim for it. But then we heard a loud rumble and the ship started moving. We were so heartbroken that we didn't even watch as it passed. I was so weak that I could feel every beat of my heart and knew it was just a matter of time before it would stop.

Joe and I turned back toward the ship as we heard what sounded like screams. The ship was about a mile-and-a-half away, but we could see it was lowering a lifeboat. Was it the other guys yelling? I couldn't make out the words. We watched the small lifeboat come out, then turn around and head back to the ship. The fear that they didn't hear us was all we needed to gather the strength to start screaming for help. The boat never turned back. We watched the lifeboat being pulled back up the side of the ship. Our fears turned to utter panic, and we continued screaming and yelling, coordinating our cries for help.

About half-an-hour passed. I kept my eyes on the ship and just kept repeating, "Please, please, God, let this be it." Nothing was happening. The ship didn't move. We took turns yelling for help. I stopped looking at the sky, because it looked like all the stars were moving. Finally, a small group of lights appeared off the stern of the ship and within seconds we were able to distinguish ... the sounds of a helicopter!



We watched the helicopter hover over the ship. I had to keep my grip on reality as we watched it circle the ship, spiraling outward each time. Three searchlights made a large patch of light on the surface of the water. We waited for the circle to be large enough for us to be spotted. The noise was overwhelming by the time the lights shone on us. As the helicopter began to move in, the wind and light were blinding, and the noise of the powerful engines was like nothing I've ever heard.

The helicopter landed in the water about 20 feet from us. The side door was open, and the current pulled us toward the helicopter. Joe was the first to reach the door, disappearing as he was sucked inside. I touched the side of the chopper, felt two hands on my shoulders, and was pulled onto a small, flat floor in the darkness of the helicopter — out of the water after more than 18 1/2 hours.

I had no control of my body, and couldn't move my arms and legs. I was helped from the floor to a bench where Joe was already receiving medical attention. My body temperature had dropped to 91. The Coast Guard corpsman assured us that our buddies were safe aboard the tanker Melvin H. Baker, and would be picked up after Joe and I were flown about 20 miles back to land, to a hospital, and treated for exposure. The Coast Guard contacted our families, and told them about our rescue. The ordeal was over.

Five at risk. Five saved. Rescue enabled by VHF distress-alerting and position-indicating. PFDs available and worn. Case highlights VHF vulnerability in “wet situations.” Circumstances allowed for only a one time MAYDAY with limited position information. Good outcome achieved after almost 20 hours in the water, substantial search effort and more than a little luck. Actual detection by MV BAKER (PN). Unnecessary risk, unnecessary cost. With ELB, likely one and done.

Lessons Learned

Float Plans And Ditch Kits

To reduce the odds of having your own horrible night, a fishing trip well out of sight of land needs to be treated very differently from an outing in a sheltered body of water or within a few miles of the coast. The boat must be offshore-capable and properly equipped, and the captain should file a float plan.

The equipment list should include more than just safety gear. The boat should be equipped with a **high-capacity bilge pump and a high-bilge-water alarm**. In addition, the following:

Enough **life jackets** for everyone aboard (required), ideally on everyone aboard, but otherwise within easy reach from the cockpit

A DSC-equipped VHF radio connected to the GPS, and a handheld, waterproof VHF

A GPS-equipped EPIRB (if you don't want to buy one for one trip, rent one from the BoatUS Foundation for Boating Safety and Clean Water, www.BoatUS.com/Foundation)

Signaling devices including portable air horns and (required) flares

For larger boats, an inflatable life raft

A grab bag or ditch kit (see the "buddy bag" below) to take with you if you have to abandon ship

Another thing I'll never do again," David Jones said, "is go offshore without someone knowing where I'm going and what time I'll be back. It's not enough to hand someone a float plan; I take a few minutes to go over the details, including where we're going and what courses we'll be following. I never deviate from that plan. Filing a float plan doesn't take long and could be crucial to the success of any search-and-rescue mission."

If you're going on a friend's boat, where you have no control over the condition of the boat and equipment, a small "buddy bag" could save your life in the event of an emergency. Whenever Lenny Rudow, BoatUS Magazine's electronics editor, gets on a friend's boat for a trip into open waters, he always brings along his own "buddy bag," a scaled-down, waterproof ditch-bag full of safety gear and foam padding (so it floats). Here's what's inside:

- **Handheld VHF**
- **Personal emergency distress beacon (PLB or Personal Locator Beacon)**
- Spare AA batteries
- Extra inflatable PFD, **Two flares; Whistle**; First-aid kit; Sealed bottle of water

Carrying all of this for a day on the water may seem overkill, but you'll be grateful to have every bit of it if your day ever turns into a horrible night.

--Beth A. Leonard

Source: BoatUS Magazine Feb/Mar 2013

NBSAC - Cumulative March through October 2012

Example Cases - SAR Results Summary

	With	Without
Cases	128	100
Lives At Risk	412	242
Lives Saved (LS)	399	186
Lives Lost (LL)	7	39
Missing (LUF)	6	20
LL + LUF	13	59
Lifesaving Effectiveness	97%	77%
SAR Efficiency	High	Low

Overall Sample [With & Without] Lifesaving Effectiveness: 89%

Efficiency: Mixed

Actual Overall CG SAR System Effectiveness [FY06-11]: 74-77%

“Wet” Accidents and “Wet” Accident Fatalities

Accident Type	2011 Count / %	2012 Count / %	2011 Deaths / %	2012 Deaths / %
All	4588 / 100%	4515 / 100%	758 / 100%	651 / 100
Capsizing	316 / 6.9%	289 / 6.4%	163 / 21.5%	133 / 20.4%
Flooding/ Swamping	501 / 10.9%	509 / 11.3%	89 / 11.7%	68 / 10.4%
“Wet” Accidents	817 / 17.8%	798 / 17.7%	252 / 33.2%	201 / 30.9%

Source: Boating Accident Stats 2011 and 2012

“Wet” Accidents and “Wet” Accident Fatalities

- Capsizings account for about 7% of boating accidents and 21% of the fatalities
- “Wet” accidents account for 18% of boating accidents and 33% of the fatalities
- Fixed VHF radios are often quickly compromised in “wet” accident scenarios affording little/no opportunity for distress communications
- These facts raise reasonable concerns with policy deliberations going forward waiving ELB offshore carriage requirements for fixed VHF carriage [between 3 and 20 miles offshore in areas with regular R21 coverage]

Federal Requirements for Recreational Vessels

- Regulations require Visual Distress Signaling capabilities offshore
- *Federal Requirements for Recreational Vessels* recommends ELB *and* VHF radio for offshore operations
- At this time the Coast Guard has no authority to require VHF carriage for recreational vessels

Possible Treatments

- “Stay the NBSAC Resolution Course” and compensate with aggressive education and complementary recommendations
- Shift in the direction of long term waiver for RTCM compliant GPS integral handhelds [with current resolution requirements for proper MMSI programming] with transitional waiver for fixed VHF [subject to current resolution requirements]

Trends in Primary Means of Distress Alerting



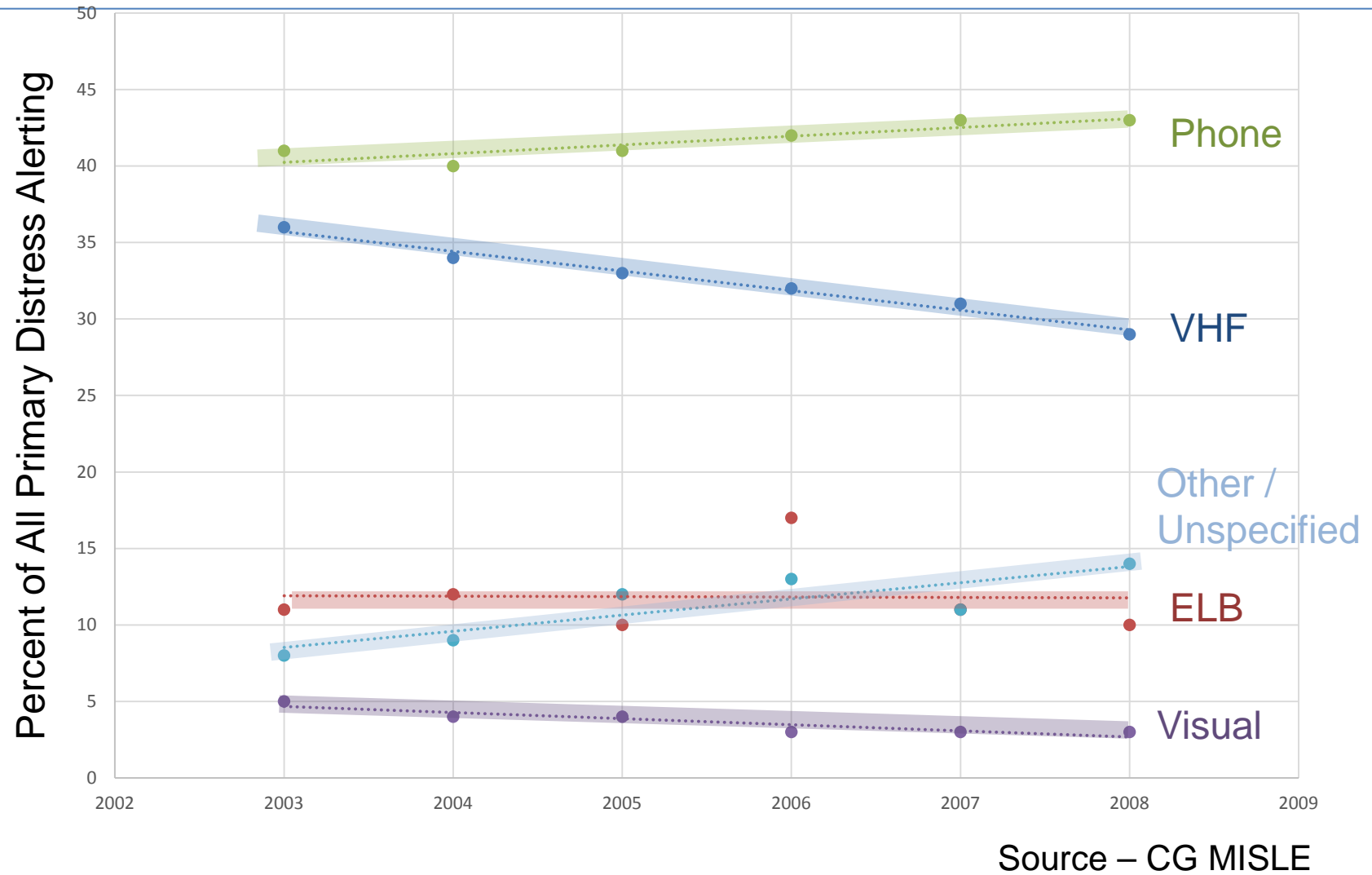
SAR Response Cases

by Notification Type 2003 - 2008

Case Count as values	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	All Years
Audio	68	55	52	45	38	32	302
EPIRB/ELT	1,633	2,014	1,652	1,697	1,798	1,484	11,303
Other	740	801	667	653	602	494	4,213
Phone	12,802	13,042	12,242	11,826	11,445	10,486	77,072
Radio	11,283	11,050	9,710	8,625	8,234	6,114	57,167
Rescue 21	0	0	0	0	0	1,024	2,253
Satellite	1,723	1,894	1,330	1,324	1,192	909	8,731
UNSPECIFIED	1,640	2,166	2,902	3,118	2,828	2,951	17,157
Visual	1,541	1,401	1,100	866	804	729	6,700
All Notification Types	31,430	32,423	29,655	28,154	26,941	24,223	184,898

	FY03	FY04	FY05	FY06	FY07	FY08	AVG
% VHF	36	34	33	31	31	29	31
% ELB*	11	12	10	17	11	10	11
% Phone	41	40	41	42	43	43	42
% Visual	5	4	4	3	3	3	4
% Other/ Unspecified	8	9	12	13	11	14	12

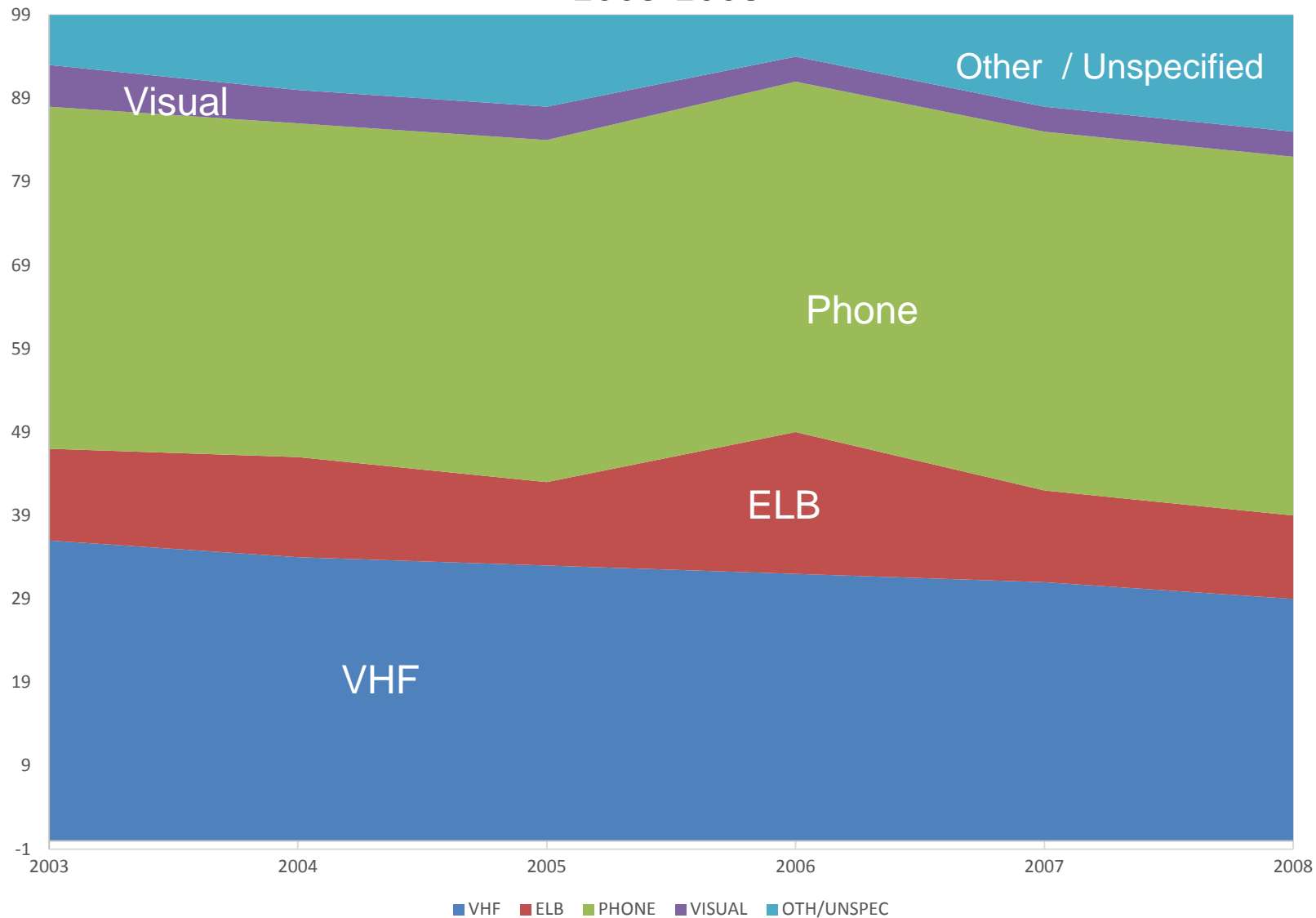
Trends in Primary Means of Distress Alerting 2003-2008





Trends in Primary Means of Distress Alerting

2003-2008



Trends in Overall CG SAR Performance



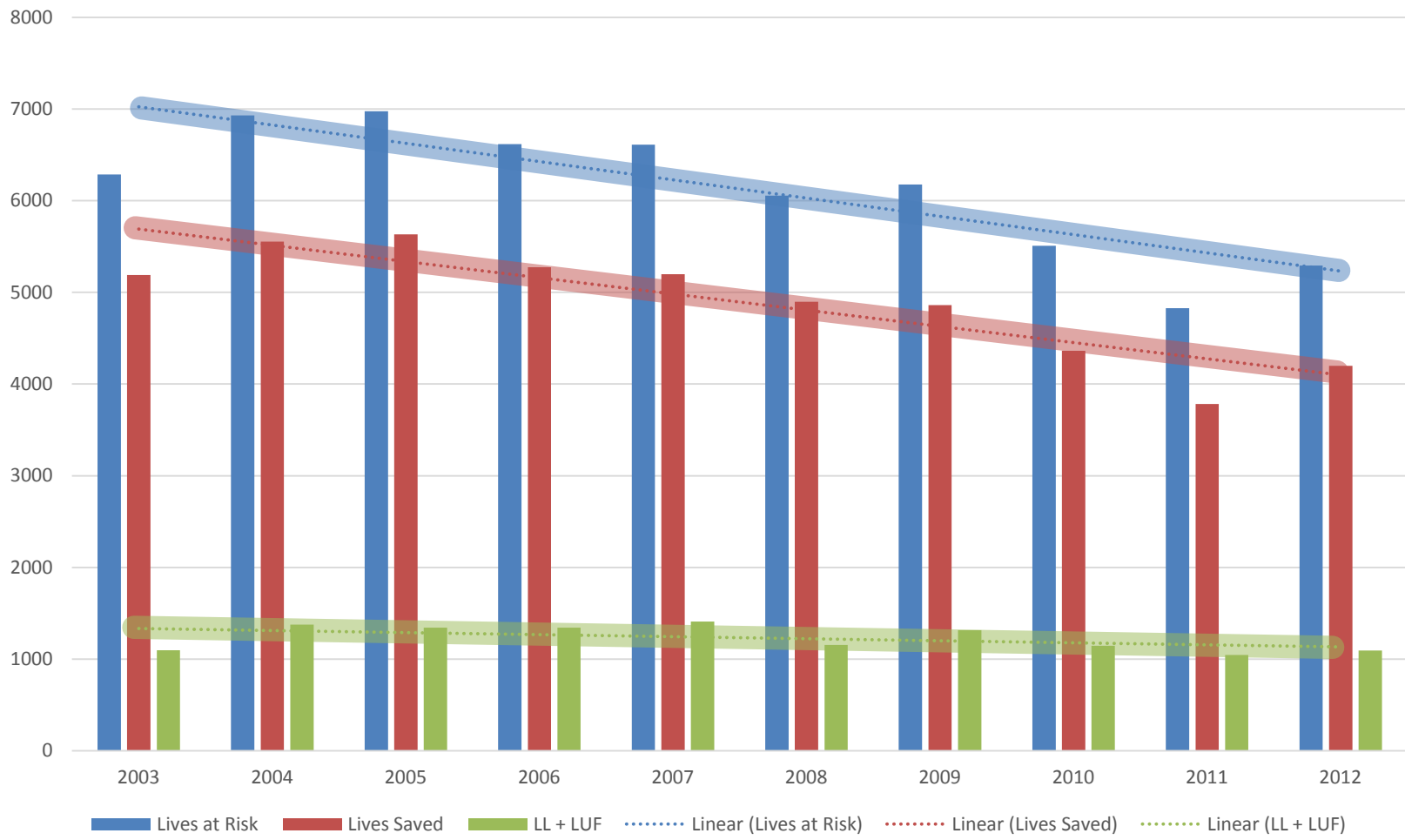
SAR Data Summary

Fiscal Year	Response Cases as values	Resource Hours as values			Outcomes			
	All Cases: Boats and Aircraft	All Aircraft by Unit	All Boats by Unit	Aircraft & Boat Resource Types	Lives Saved	Lives Lost Before CG Notification as values	Lives Lost After CG Notification as values	Lives Unaccounted For as values
FY 2003	31,419	16,715.9	39,742.5	56,458.4	5,189	411	189	496
FY 2004	32,416	16,959.2	38,900.8	55,860.0	5,555	502	184	691
FY 2005	29,639	21,388.3	43,258.9	64,647.2	5,633	521	219	603
FY 2006	28,147	16,776.8	34,429.3	51,206.1	5,275	475	204	664
FY 2007	26,918	17,693.5	33,007.8	50,701.3	5,200	491	187	732
FY 2008	24,204	19,009.6	32,213.9	51,223.5	4,899	534	186	435
FY 2009	23,544	17,253.7	32,147.7	49,401.4	4,882	555	183	578
FY 2010	22,229	18,112.7	31,325.6	49,438.3	4,362	554	183	409
FY 2011	20,509	15,918.3	29,817.4	45,735.7	3,793	480	172	392
FY 2012	19,787	16,091.3	29,867.7	45,959.0	4,030	429	224	440
All Years	258,812	175,919.3	344,711.6	520,630.9	48818	4952	1931	5440

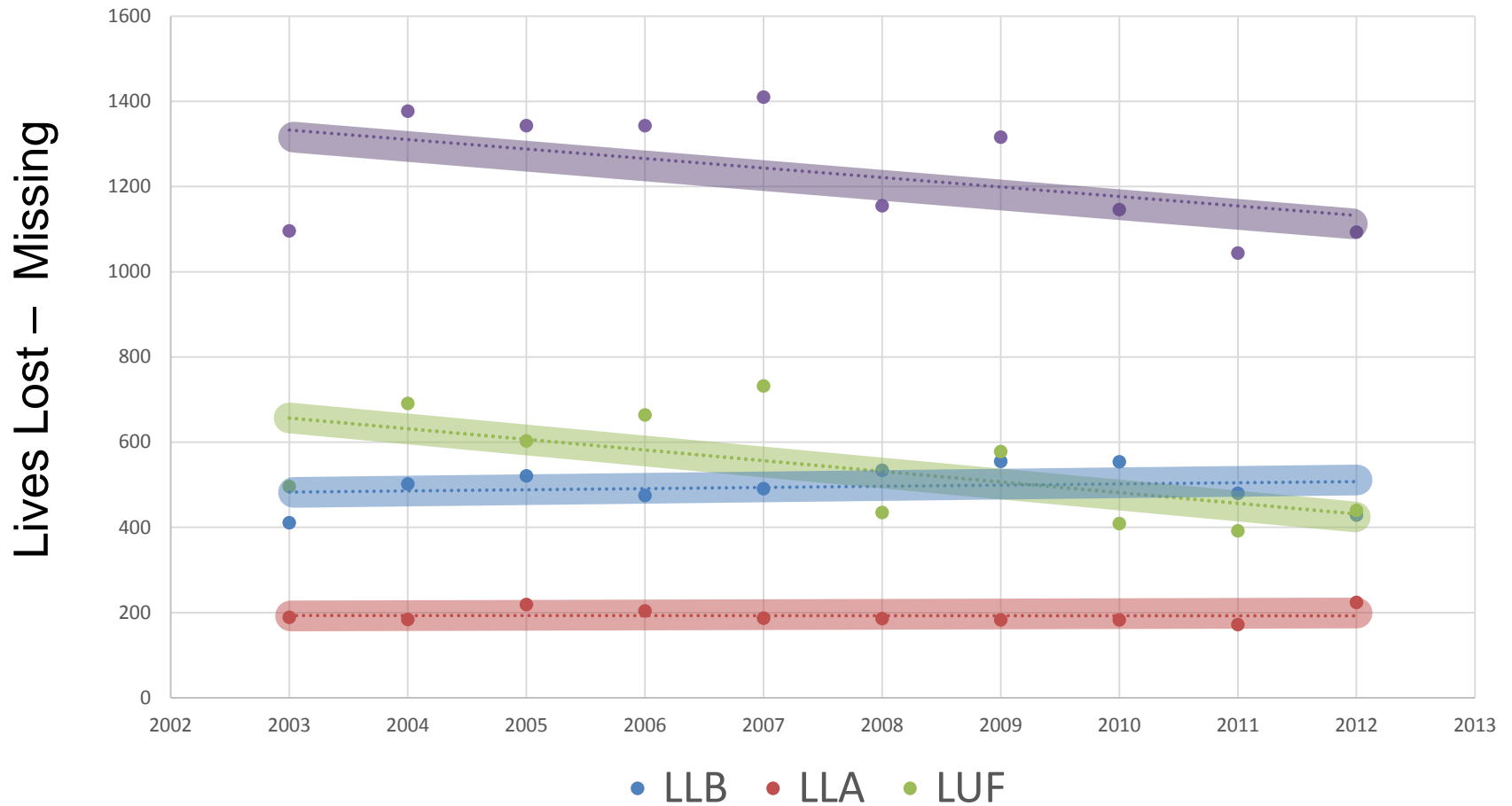
Source: DCO 8



Lives at Risk, Lives Saved, Lives Lost + Missing FY03-FY12

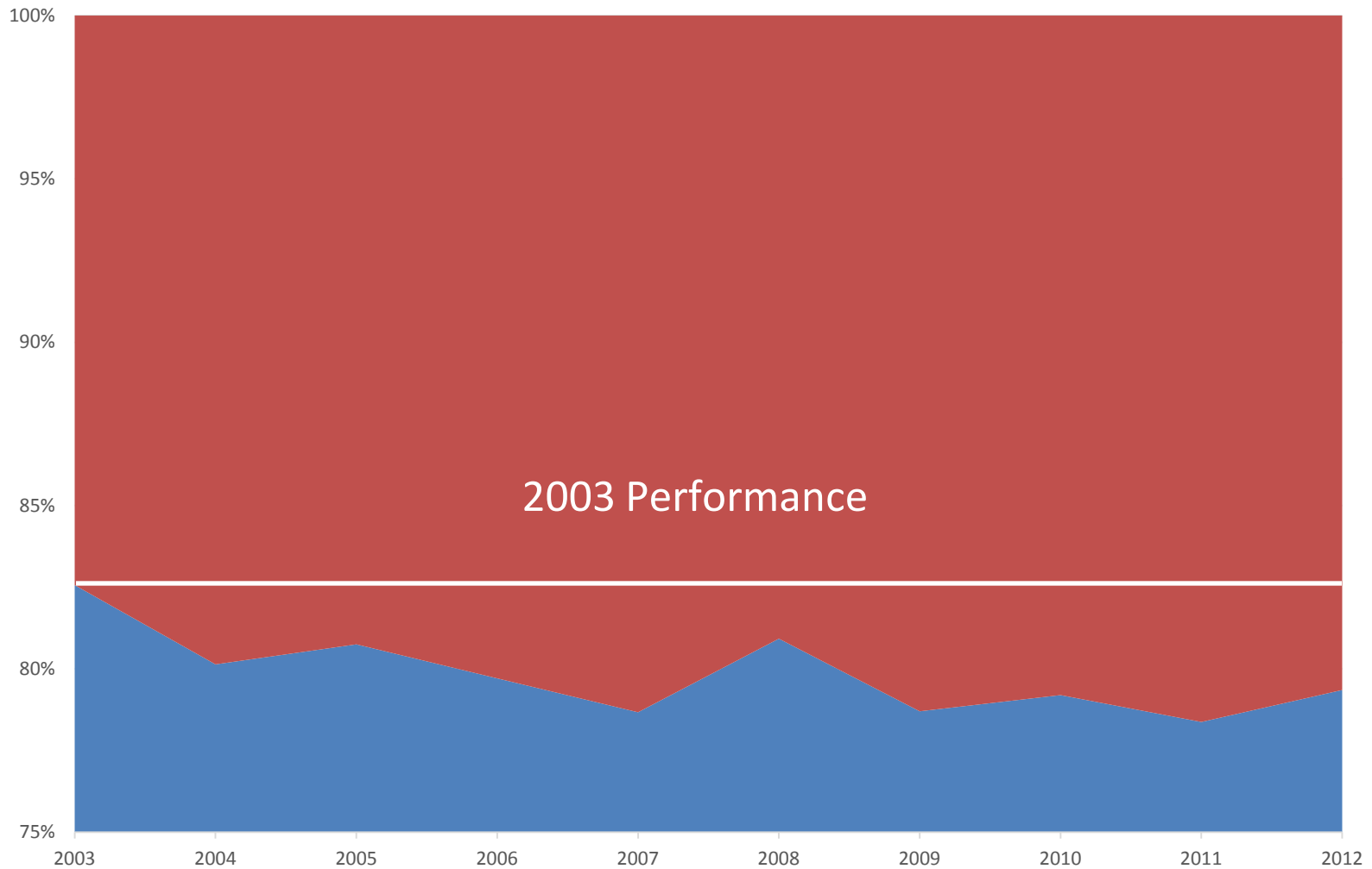


LLB, LLA, LUF, Total for FY03-12

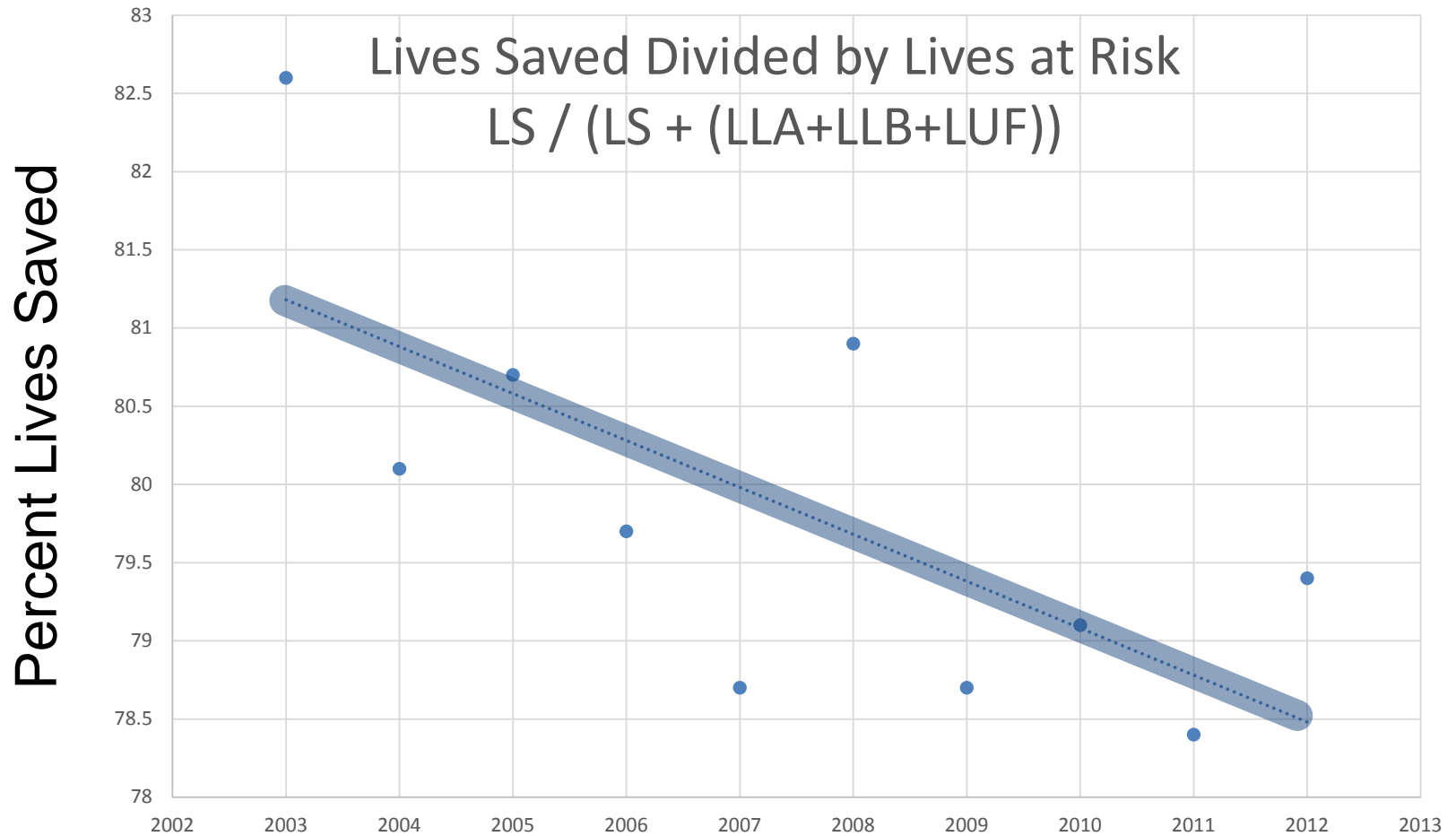




Lives Saved and Lives Lost + Missing as Share of Annual Lives at Risk



SAR Effectiveness FY03-12



DHS OIG 2013 Report on CG Mission Performance



OFFICE OF INSPECTOR GENERAL

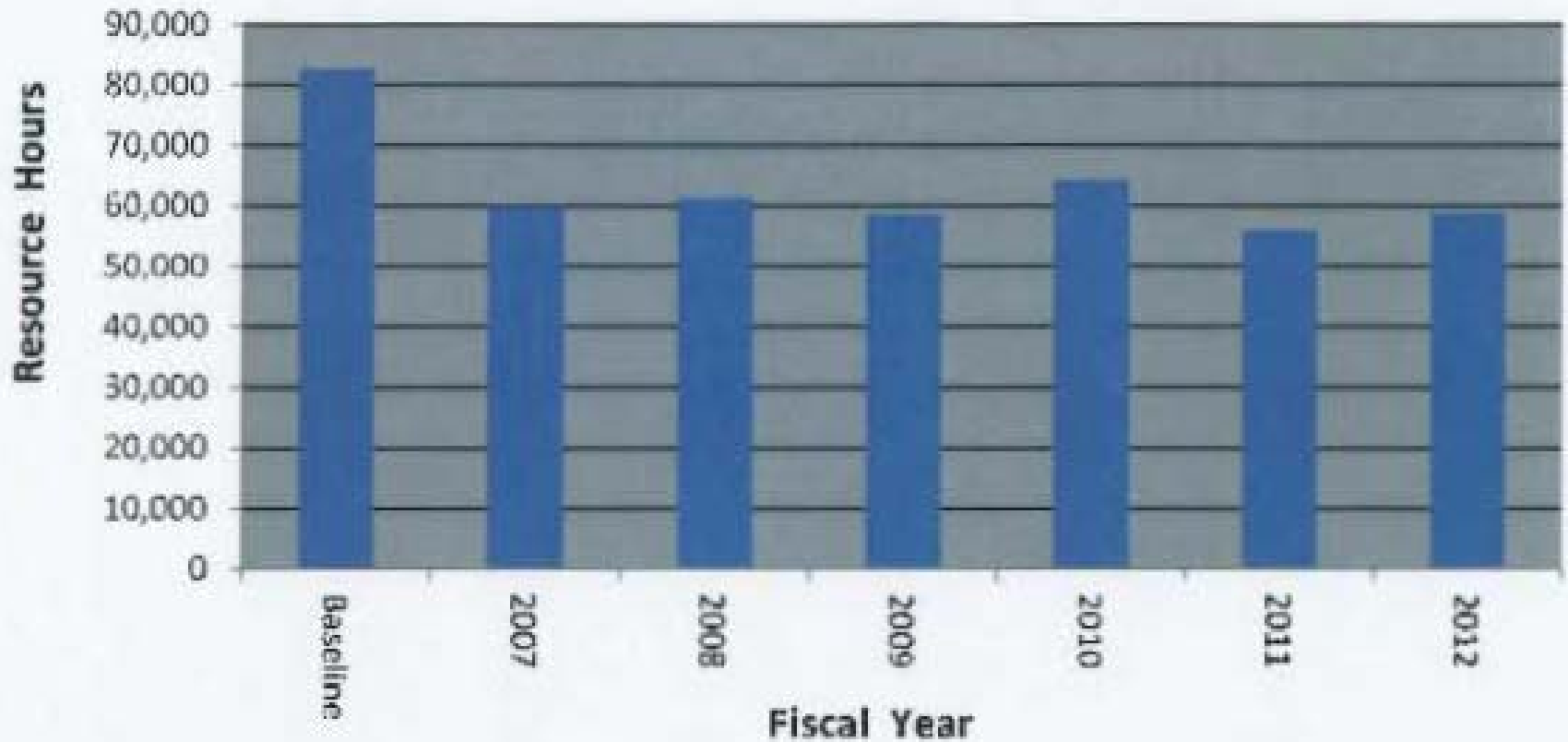
Department of Homeland Security

Executive Summary

This report presents our annual review of the United States Coast Guard's (USCG) mission performance, as required by the *Homeland Security Act of 2002*. The act defines the USCG's 11 statutory missions as either non-homeland security missions (marine safety, marine environmental protection, search and rescue, aids-to-navigation, living marine resources, and ice operations) or homeland security missions (ports, waterways, and coastal security; drug interdiction; migrant interdiction; defense readiness; and other law enforcement). The act also prohibits the Secretary of Homeland Security from substantially reducing any of the USCG's missions after its transfer to the Department of Homeland Security (DHS), except as specified in subsequent acts.

The objective of this review was to determine the extent to which the USCG is maintaining its historical level of effort on non-homeland security missions. To address our objective, we reviewed the resource hours the USCG used to perform its various missions. We also reviewed the USCG's performance measures and results for each non-homeland security and homeland security mission. We did not verify the accuracy of the USCG-provided data.

Search and Rescue Resource Hours



Source: DHS OIG based on USCG-provided data.

An enduring downshift of about 30% since 2002.

Search and Rescue						
Performance Measure – Percentage of People in Imminent Danger Saved in the Maritime Environment						
FY 2007 Actual	FY 2008 Actual	FY 2009 Actual	FY 2010 Actual	FY 2011 Actual	FY 2012 Target	FY 2012 Actual
76.6%	76.8%	77.3%	74.4%	77.2%	100%	77.3%
√ Met	√ Met	√ Met	X Not Met	X Not Met		X Not Met

Source: DHS OIG based on USCG-provided data.

The Coast Guard saved 3560 lives in FY2012 in 19,700 cases. This total excludes outlier cases with more than ten lives at risk.

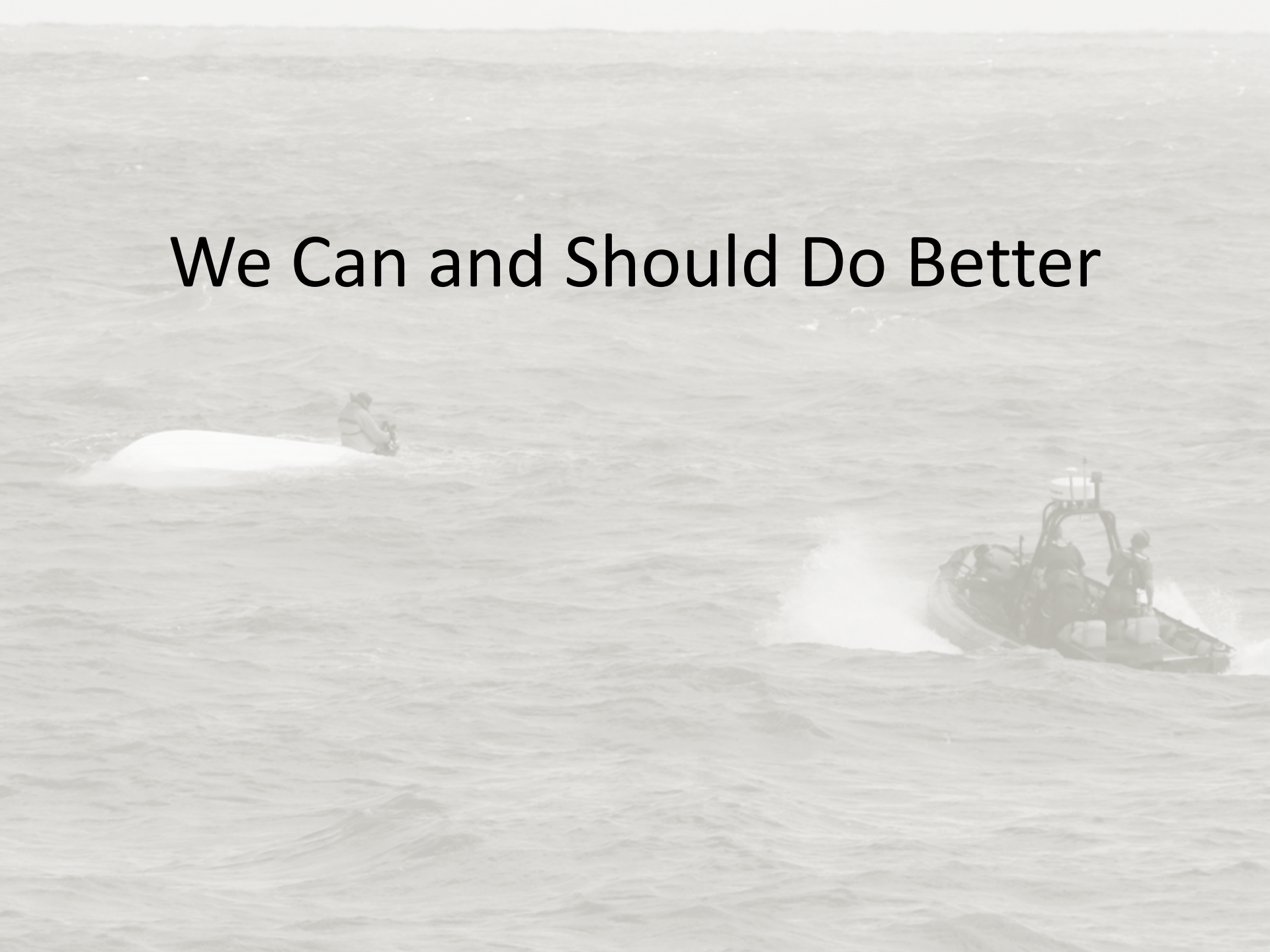
Search and Rescue

Performance Measure – Percentage of Time Rescue Assets Are On-Scene Within 2 Hours

FY 2007 Actual	FY 2008 Actual	FY 2009 Actual	FY 2010 Actual	FY 2011 Actual	FY 2012 Target	FY 2012 Actual
94.3%	93.3%	94.0%	93.3%	93.1%	100%	93.5%
√ Met	√ Met	√ Met	√ Met	× Not Met		× Not Met

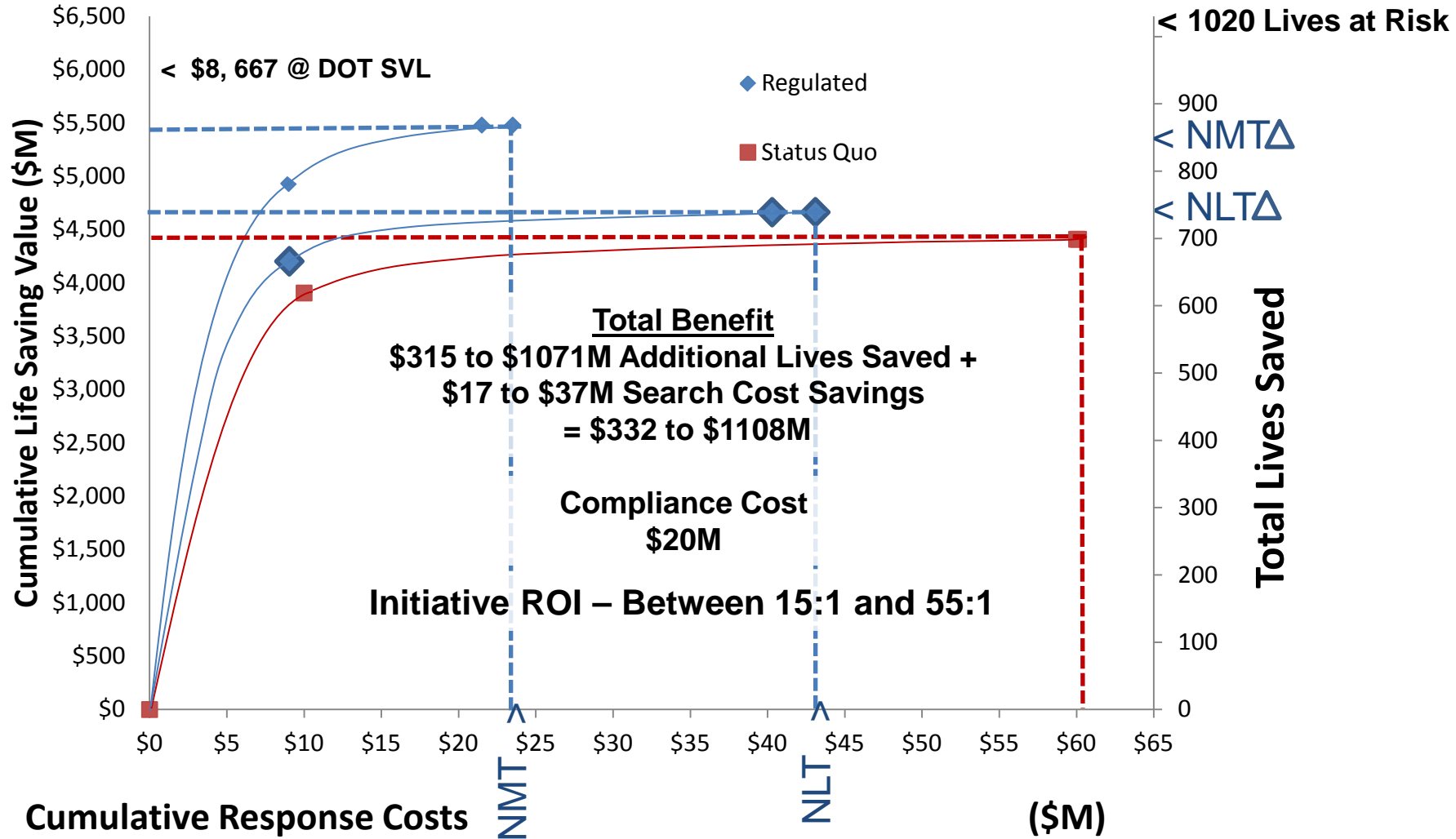
Source: DHS OIG based on USCG-provided data.


We Can and Should Do Better



Illustrative SAR Performance – Cost Curves

U.S. Recreational Vessel Distress Cases > 3NM Offshore





Expected Impact of ELB Carriage Requirement

- An initiative requiring **Emergency Locator Beacon (ELB) carriage for rec vessels operating beyond 3NM offshore**, under authority of CG Authorization Act 2010, **would improve distress-alerting, position-indicating and active-signaling capabilities for those affected, and save more lives at lower cost.**
- A **\$20M annual “Risk Taker” community** Emergency Locator Beacon **Expenditure** (about \$40 per affected vessel x about 500,000 affected vessels) could—
 - **Save an estimated additional 30 – 85+ lives/yr** (\$189M - \$774M) (in rec vessel beyond-three mile incidents, including inside-three “by catch” incidents)
 - **Reduce annual Coast Guard response costs by about \$10M - \$40M**
 - With an **estimated ROI of between 10:1 and 40:1** Even skewing estimated additional lives saved to as low as ten and holding other low estimate values constant, ROI is very conservatively 4:1.
- Improving effectiveness and efficiency is generally a good thing—especially so in the current and forecast federal budget climate.

Questions?



Backup Slides

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Dropbox link to ELB library on request

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Distribution of CGDONE SAR Cases by Distance Offshore

Range (NM)	Cases	Percentage
0 – 10	4,742	81.52
10 – 20	381	6.55
20 – 30	158	2.71
30 – 40	89	1.52
40 – 50	80	1.40
50 – 100	191	3.30
> 100	176	3.00

Table 1: Statistical breakdown of cases by distance.

Source: 2009 CGA Capstone Study – D1 SAR FYs 06-08

Lifesaving Performance by Distance Offshore

	Saved	LLBCGN	LLACGN	STAT
All Data (in Naut. Miles)	797	85	26	87.77533
<50	735	81	25	87.39596
50 to 100	26	3	0	89.65517
>100	36	1	1	94.73684
Individual Rings				
40 to 50	8	1	0	88.88889
30 to 40	7	0	0	100
20 to 30	15	0	1	93.75
10 to 20	40	9	0	81.63265
< 10	665	71	24	87.5

Table 2: Offshore Strategic Enterprise Measure Results

Source: 2009 CGA Capstone Study – D1 SAR FYs 06-08



Lifesaving Performance by Distance Offshore

- In this study SAR performance generally improves with distance offshore from a baseline of 87.5% for the 0 to 10NM band, except for a significant drop-off to about 82% for the 10 to 20NM band [worst overall] to a near-high of about 95% in the beyond 100NM zone.
- This suggests superior operator distress-alerting, position-indicating, active-signaling, and survival capabilities in the farther offshore environment – likely a combination of increasing share of regulated population [CFVSA], and recreational vessel operators respectful of elevated risk.
- Significant numbers of Lives Lost Before CG Notification (LLBCGN) suggest opportunity for improved distress-alerting.
- Significant number of Lives Lost After Notification (LLLACGN) suggest opportunity for improved position-indicating, active-signaling, and survival capabilities.

Lifesaving Performance By Season

<u>Season</u>	<u>Saved</u>	<u>LLBCGN</u>	<u>LLACGN</u>	<u>STAT</u>
Winter	32	10	2	72.7
Spring	180	22	4	87.4
Summer	458	32	17	89.2
Fall	131	15	3	87.9

Table 4: Seasonality Strategic Measure Statistic

- Cold water impact apparent.
- About a 16% Summer effectiveness advantage compared to Winter.
- Spring and Fall effectiveness values comparable and closer to summer values given temporal exposure distributions.
- Incident level analysis of loss of LL/LUF cases sure to show distress-alerting, position-indicating, active-signaling, survival issues. Based on LLB v. LLA split, alerting deficit seems greater problem.



2007 Center for Naval Analysis Independent SAR Program Review

Table 6. The impact of not having to search^a

	% Lives saved ^b	Lives saved per 100 sortie hours
Located without search	96.4	72.1
Search performed	90.2	45.7

a. All data from MISLE, includes WPB, boats, aircraft.

b. After CG notification.

2007 CNA SAR Review Table 6

Table 6 shows that the difference in lives saved is significant—as much as 6 percentage points. The efficiency of the SRU action also increased—the number of lives saved per 100 sortie hours goes up by over 50 percent. Of course, this comparison should be taken with a grain of salt: as appendix C describes, we had to perform our analysis on a subset of available MISLE data that may not be representative of SAR activity as a whole. However, an analysis like this can project the maximum increase in SAR effectiveness to be expected from an improved SAR sensor or better distress-signal locating, assuming mission profiles stay roughly constant. A better sensor might cause the SRU to be much more effective than in its pre-improvement mission use, but it also might allow it to be used in more difficult conditions than it could be beforehand. This might tend to counterbalance the improved technology with a more challenging application.

2007 CNA SAR Review

Table 15. Efficiency calculation by search category and resource type^a

Search category ^b	Resource type	Lives saved ^c	Lives lost ^d	Sortie hrs	Lives saved per 100 hrs	Lives lost per 100 hrs
Search performed	Boat (<65')	2,309.9	144.9	3,888.8	59.4	3.7
	Fixed wing	160.6	113.5	950.9	16.9	11.9
	Helo	1,042.4	87.5	2,610.1	39.9	3.4
	WPB	36.2	0.7	318.7	11.4	0.2
<i>Search performed total</i>		3,549.1	346.6	7,768.4	45.7	4.5
Located directly	Boat (<65')	2,307.1	77.0	2,392.7	96.4	3.2
	Fixed wing	70.8	1.7	391.9	18.1	0.4
	Helo	590.6	28.4	1,319.3	44.8	2.2
	WPB	155.4	3.4	231.6	67.1	1.5
<i>Located directly total</i>		3,123.9	110.5	4,335.5	72.1	2.5
Unknown	Boat (<65')	3,908.4	165.4	5,085.9	76.8	3.3
	Fixed wing	218.3	8.3	986.5	22.1	0.8
	Helo	841.7	55.0	2,141.5	39.3	2.6
	WPB	96.4	3.8	526.6	18.3	0.7
Unknown total		5,064.8	232.5	8,740.6	57.9	2.7
Grand Total		11,737.7	689.6	20,844.6	56.3	3.3

2007 CNA SAR Review Table 15

- a.

These calculations are based on a subset of the data in MISLE (5,745 cases, involving 8,811 sorties). We note that this efficiency analysis is an illustration of a technique and, as detailed in the text, involved significant culling of the data to generate a viable sample dataset; we do not base any findings on these results.
- b. “Located directly” indicates that no search was necessary; the response unit located the target upon arrival on-scene.
- c. Fractions resulted from the way we calculated lives lost and saved: We used the “outcome amount” indicated in the case records and ignored that listed in the sortie records. Where several sorties were involved in a single case, we assigned a proportional amount to the number of lives involved. For example, if four sorties were involved in a case where 1 person’s life was saved, each sortie was considered to have saved 0.25 lives
- d. Includes all lives lost after the Coast Guard received notification; see footnote c above.

National Maritime Strategic Risk Assessment

In 2012, the United States Coast Guard Office of Performance Management and Assessment (DCO-81) completed the fourth installment of the National Maritime Strategic Risk Assessment (NMSRA). The NMSRA utilizes available enterprise data, subject matter expert judgments and results of other models to provide decision makers a comprehensive view of the maritime risk environment over the next five to eight years. The NMSRA uses an equivalent-value measuring stick to determine an apples-to-apples estimation of the adverse outcomes the Coast Guard is charged to minimize – comparative risk to the American public.

The NMSRA is a biennial, cross-program assessment which produces three main products: a residual risk profile, a Coast Guard risk reduction profile, and key risk observations for management. The residual risk profile estimates the expected societal loss remaining after the Coast Guard has performed all its prevention and response activities. The risk reduction profile estimates the amount of risk averted as a result of Coast Guard activities—where the estimation can be reasonably determined; which is the case for Coast Guard response activities. Finally, the NMSRA offers key observations useful for supporting performance management and decision-making.

The 2012 NMSRA estimates potential residual maritime risk to be \$93 billion per year over the next five to eight years. This is the expected cost to the American public of adverse outcomes in the maritime domain after the benefits of Coast Guard activities are considered. The 2012 NMSRA estimates annual risk reduction due to Coast Guard response activities to be approximately \$107 billion per year over the next five to eight years. The risk reduction value of Coast Guard prevention activities and the deterrence effect of Coast Guard presence are undetermined and not reflected.

The NMSRA provides a foundation upon which analysts can evaluate various risk management strategy options to support management decisions. It can be used to inform a wide variety of Coast Guard performance management and resource allocation decisions, including: Mission Analysis and Program Evaluation, development and prioritization of performance initiatives and resource proposals, Program Performance Plans and targets, and Strategic Planning Direction to operational planners and global force apportionment and resource allocations.

The NMSRA also satisfies key requirements of the Department of Homeland Security (DHS) Policy for Integrated Risk Management, specifically: “It is the policy of the Department and its Components to carry out the following functions:

Incorporate the following risk management process into the overall mission and management...

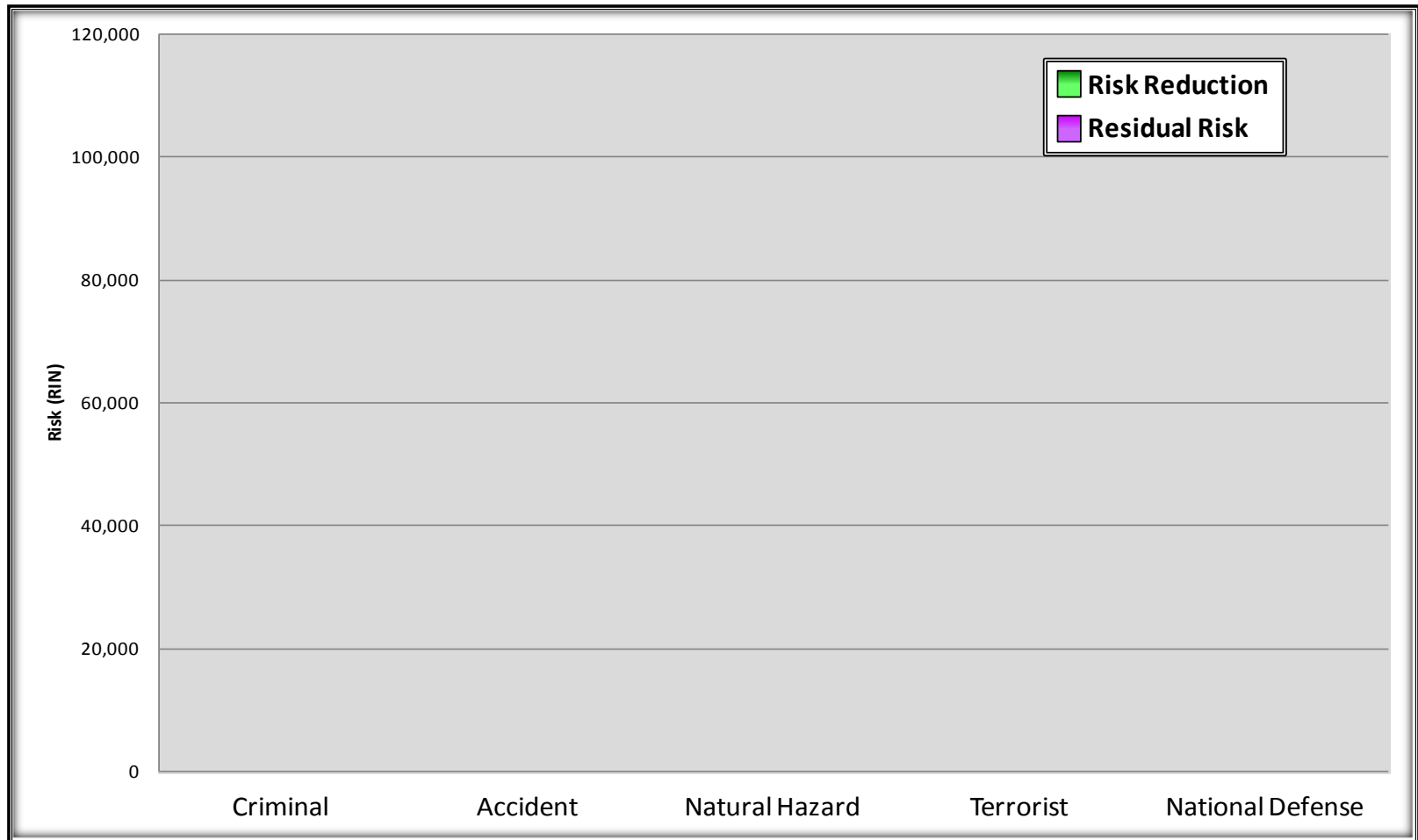
Use risk information and analysis to inform decision-making...

Develop methodologies, where appropriate to determine the extent to which its programs and activities manage and reduce risk to the Nation... [Janet Napolitano, Secretary DHS]

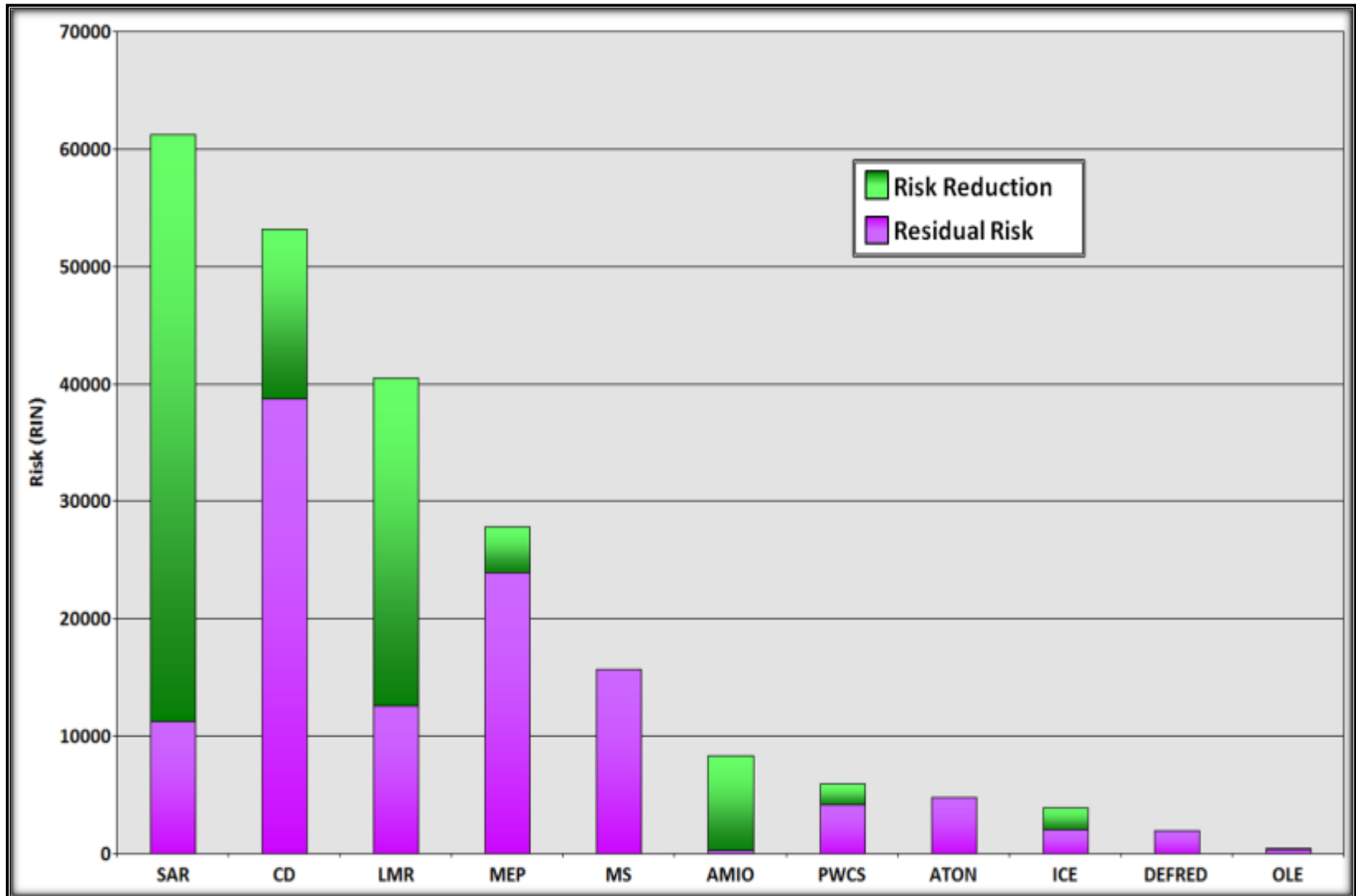
The 2012 Abridged NMSRA Report offers a condensed strategic overview of the NMSRA results to limit sensitive security information and specific operations information.

RISK REDUCTION AND RESIDUAL RISK BY THREAT

NATIONAL MARITIME STRATEGIC RISK ASSESSMENT 2012



Residual Risk and Risk Reduction by Mission



Performance Improvement Opportunities

- Failure analysis lacking. 25% of persons at risk not saved suggests ample opportunity for improvement. Conduct aggressive failure analysis. Who, what, when, where, why, how?
- Significant number of lives lost before notification suggests ample opportunity for distress-alerting capability improvement.
- Significant number of lives lost after notification suggests ample opportunity for position-indicating/active-signaling/survival capability improvement.
- Significant number of persons missing at suspend suggests same.

New EPIRB laws will help save lives

Australia 1 October 2013

All skippers navigating more than two nautical miles off the metropolitan coast will need an emergency position indicating radio beacon (EPIRB) from January next year.

Department of Transport (DoT) Marine Safety General Manager David Harrod said the Metropolitan EPIRB Exempt Zone extending from Garden Island to Mindarie Keys and out to Rottnest would be abolished.

Mr Harrod said from January 1, 2014 new consistent State-wide marine laws would require skippers throughout WA to carry an EPIRB when operating more than two nautical miles from the coast or more than 400 metres from an island located more than two nautical miles from the mainland shore.

New consistent state-wide marine laws will require skippers throughout Western Australia to carry an EPIRB when operating more than two nautical miles from the coast or more than 400 metres from an island located more than two nautical miles from the mainland shore. Recent improvements in EPIRBs had seen authorities question the continued operation of the exemption zone.

“New generation EPIRBs provide exact location coordinates which greatly enhances the chance of rescue and survival in an emergency on the water. EPIRBs can significantly reduce the time it takes to rescue people and on the water this can be the difference between life and death.”

“The cost of the potentially lifesaving device is also significantly less now with the cost of carrying an EPIRB, which has a six year battery life, less than \$5 a trip if a vessel is taken more than two nautical miles offshore 10 times a year on average. Removal of the exemption zone also reduces confusion amongst skippers by providing consistent boundaries for mandatory carriage of an EPIRB throughout WA.”

New EPIRB laws will help save lives (cont'd)

In February last year the state coroner recommended the reduction or removal of the EPIRB exempt area after investigating the death of a man while boating off Two Rocks in April 2010. Mr Harrod said DoT had received widespread support from recreational boating groups and relevant authorities to amend current marine laws.

“DoT recorded 85 recreational boating incidents in the EPIRB exempt zone between 2008 and 2012 reinforcing the need for EPIRBS to become mandatory to provide rapid and accurate location information to rescue authorities,” Mr Harrod said.

“There is undisputed evidence that carriage of an EPIRB can save lives in an emergency on the water.”

There are now more than 52,000 registered recreational vessels in the metropolitan area and it's estimated up to 20 per cent will need an EPIRB following the introduction of the new laws.

Currently 44,300 EPIRBS are registered in WA which accounts for 20 per cent of the national total. DoT has produced a special brochure to assist skippers purchasing and registering an EPIRB. Download a copy at transport.wa.gov.au/epirbs or contact the marine safety hotline on 1300 863 308.