

海難搜救之檢討與策進

以「新協發號」船長落海搜救案為例

The Review and Quality Improvement on Maritime Rescue Missions of Maritime Patrol Directorate General, the Coast Guard Administration of Executive Yuan -

Taking The Sea Rescue For Caption of Fishing Boat " Sin-Sie-Fa " Who Had Fallen Into the Sea As An Example.

◎文/ 蘇振義 ◎ Article / Su Jhen-yi

壹、前言

海洋巡防總局依法職司海難船舶與人員搜索、救助及緊急醫療救護。對於海難搜救任務責無旁貸，當發生海難事故時，以「救人」為第一優先考量。96年9月底發生花蓮籍「新協發號」漁船沈沒船長漂流獲救案，媒體批評海巡單位搜救技巧太差，為亡羊補牢特提出檢討策進作為，引為殷鑑。

貳、案情經過

經訪談「新協發號」船長「劉○○」遇難經過，摘錄案情重點如後：

一、發生時間、地點：

96年9月26日11時50分在花蓮奇萊鼻外海10哩處。



I. The Foreword

According to the laws, Maritime Patrol Directorate General is responsible for searching, helping and providing emergency medical service for boats and people of maritime disasters. It is our unshirkable responsibility to execute sea rescues. When accidents happen, our priorities are always saving human lives. The rescue mission in September 2007 for Captain of the sunken Huan-Lien registered fishing boat " Sin-Sie-Fa " attracted a lot of criticism for Maritime Patrol Units' poor rescue skills from the media. To uphold the spirit of " It's never late to mend the fold ", and take the warning from this incident, Maritime Patrol Directorate General would like to review this case and bring in some quality improvement.

II. Case Description

After interviewing Liu XX, Captain of fishing boat " Sin-Sie-Fa ", here is the excerpt of the key points on the case :

(I) Time and location of the accident :

At 11: 50, September 26th, 2007. 10 nautical miles off Cilaibi, Hua-lien.

(II) Main reasons that caused the accident:

The weather that day - north-east wind reached to scale 5-6, the tonnage of the boat was too small (CT0), and the boat was old , plus the fish yields on board were way too heavy for the boat itself. Water flooded into the cabin and caused the boat to sink.

二、遇難主因：

當日海象東北風5至6級，且船體噸位太小(CT0)、老舊，加上漁獲量太多不堪承載，致漁艙進水沈沒。

三、遇難過程：

- (一) 遇難船長隨即以無線電向附近作業友船「裕興號」發出求救信息，漁業電台中途截聽到雙方通話訊息後，主動瞭解狀況，遇難船長告知電台船位經緯度後，5分鐘後漁船旋即沉沒，船長落海即緊抱3塊木板，當時北風往南吹，人隨著海流往北漂流。
- (二) 漂流期間(依觀看太陽推算約下午3時)，曾目睹直升機來回飛航2趟及巡防艇2艘在附近搜尋，且在遠處先後看到熟識之「裕興號」漁船及「太平洋號」賞鯨船。
- (三) 當時直升機及巡防艇，搜尋方向係以事故點往南沿線搜尋。
- (四) 入夜後，在遠處目睹「巡防艇」由南往北打探照燈搜尋。
- (五) 翌(27)日6時8分(漂流19小時後)在蘇澳外海約22浬處由「金長發號」漁船發現後將其救起。

參、搜救勤務檢討：

由訪談遇難船長「劉○○」遇難經過，發現本案缺失臚列如後：

一、未掌握事故海域狀況

依遇難船長表示，當時北風往南吹，人隨著海流往北漂流，而直升機及巡防艇，搜尋方向卻以事故點往南搜尋，顯見搜索模式只侷限考慮風向問題，未掌握東部海域黑潮洋流往北北東流向，且海流推力大於風吹力之特性，未選擇往北漸移之方位搜索，致錯失搶救先機。

二、未及時檢討搜救區域

遇難船長漂流3小時後曾看見直升機及巡防艇在附近航行，而當時參與搜救能量包括巡

(III)Elaboration on the accident :

1. When the accident happened, Boat Captain Liu immediately made an emergency distress call to the neighboring fishing boat " Yu-Sing " through wireless radio. The fishing radio station intercepted their messages and actively followed up the whole situation. Captain of the stricken fishing boat informed the radio station the boat's longitude and latitude. Five minutes later, the boat had sunken completely and the boat Captain had to hold on to 3 pieces of wood after falling into the sea. At that time, the north wind was blowing southward and the boat Captain was drifted northward by the ocean current.
2. During the time the boat captain was drifting in the ocean (it was about 3:00 pm according to the position of the sun), he saw a helicopter flying back and forth twice and 2 frigates searching nearby. He also saw fishing boat " Yu Shing " and whale watching boat " The Pacific " in the far distance.
3. At that time, the search routes of the helicopter and the frigates were southward from the location where the accident happened.
4. After midnight, the boat captain saw the frigates using searchlight searching for him on a northward route.
5. The next day (September 27th), at 6: 08 am (after drifting for 19 hours in the ocean), the boat captain was spotted and rescued by fishing boat " Jin-Chang Fa " 22 nautical miles off Su-Ao port.

III. To review the search & rescue mission

According to the interview with Captain Liu of the sunken fishing boat, several flaws are found :

(I)Failure to obtain a full understanding of the sea area

According to the captain of the sunken boat, the north wind was blowing southward and he was drifting northward by the ocean current. The helicopter and the frigates, however, were searching southward. It was obvious that the searching patterns of the rescue team were only limited to wind direction. They failed to grasp the factors that the black tidal current in the east part of the sea area was moving north north east and the special characteristic that the ocean current thrust was bigger than the wind blow. That was why they didn't choose to search northward and lost the opportunity to save the victim in the first place.

(II)Failure to review the search area in time

After the captain of the sunken boat had been drifting in the ocean for 3 hours, he saw a helicopter and frigates searching in the nearby area. The rescue capacities at that time were 3 frigates (No. 2015, No. 5015 and No. 10029) and 1 helicopter

防艦艇（2015艇、5015艇、10029艇）3艘、空勤總隊直升機1架，於現地搜尋3小時後未尋獲目標，現場搜救指揮官未重新修正搜救基點，亦未妥適運用搜救能量，重新變更搜救部署，致降低搜救效能。

三、未派員保持有效瞭望

搜救期間賞鯨船及巡防艇先後在案發附近海域發現遇難船上之漁具及器具，足見該船可能已沉沒。由於搜索點已縮小至船長1人，光靠艇上現有航儀裝備，在遼闊海域發現細小目標不易，此時在安全情況下應派員穿著救生安全裝備至艇外，使用望遠鏡瞭望予以輔助搜尋，方能擴大搜尋面。本案遇難船長曾目睹巡防艇2艘在附近搜尋，雖當日海象不佳，惟各艇未派員至艇外加強瞭望，致降低搜救成功率。

四、未與空勤組保持聯繫

遇難船長曾目睹直升機來回飛航2趟及巡防艇2艘在附近搜尋，顯見當時直升機與巡防艇搜尋方位產生重疊之情形，且目睹時間在白天，能見度高，此時現場搜救指揮官未利用直升機機動偵蒐能力及搜尋面遠比巡防艇更佳之特性，與空勤組透過海事VHF、UHF（觀通機）無線電保持通聯交換意見，適時調整直升機搜索區域，致降低直升機搜尋效能。

五、未落實聯合搜救機制

花蓮隊未評估當時海流狀況，推估遇險目標漂流位置，僅通報東部地區機動海巡隊派艇協助救援，未及時通報蘇澳隊派艇啟動南、北海域聯合搜救機制，致遇難船長漂流19小時後，於翌日在蘇澳外海約22浬處由「金長發號」漁船發現後將其救起，遭媒體批評海巡單位搜救技巧太差，致海巡人員之辛勞與努力徒勞無功。

of National Airborne Service Corps. They searched the target for 3 hours but found nothing. The rescue team commander at the scene failed to neither readjust the search base nor make the proper use of the search capacity. He also failed to readjust the rescue plan and thus decreased the search efficiency.

(III) Failure to send staff for maintaining effective watch

During the search period, the whale watching boat and the frigates found fishing tools and equipment of the sunken boat in the sea area where the accident happened. It was very likely that the boat already sank. Therefore, the search target was narrowed down to the boat captain. It was not easy to spot such a small target with the marine equipment equipped on board of the frigates. Staff members that wore life jacket should have been sent off the frigates to help broaden the search area for the target with binoculars. In this case, captain of the sunken boat saw 2 frigates searching in the nearby area. Although the weather was bad that day, chances for successfully rescuing the victim were decreased because no staff was sent off the frigates to reinforce the watch.

(IV) Failure to stay in contact with the Airborne Service Corps

Captain of the sunken boat saw a helicopter flying back and forth twice and 2 frigates searching in the nearby area. It was obvious that the search area was overlapped. The time he saw it happen was at daytime and the visibilities were high. Under such condition, the rescue team commander failed to utilize the helicopter's advantages of active detecting abilities and capable of obtaining a broader search area than that of the frigates to exchange information with the Airborne Service Corps through maritime affairs VHF, UHF (portable analog radio) wireless radio, then, readjusted the helicopter's search area in time. Because of these mistakes, the search capacity of the helicopter was decreased.

(V) Failure to implement the joint search & Rescue mechanism

Hua-Lien Offshore Flotilla didn't review the ocean current at that time in order to find out the drift position of the target. Instead, they only report to Eastern Sector Flotilla, asking them to dispatch a frigate to support in search & rescue mission. They, however, failed to report to Suao Flotilla to activate the joint search & rescue mechanism of south and north sea area and it caused the captain of the sunken boat drifting in the ocean for 19 hours before being saved by fishing boat "Jin-Chang Fa".

肆、策進作為

一、重新律定事故處理機制

- (一) 依「本總局海難救護執行計畫」規定：
各海巡隊接獲通報，於責任轄區發生海難事件，視實際狀況需要，除無人員傷亡者外，應成立緊急應變中心，另依署頒「海岸巡防機關執行海上救難作業程序」規定：未達5人遇難之海難事件，除無人員傷亡者外，由各巡防區成立緊急應變中心，負責協調聯繫搜救作業。
- (二) 巡防區成立後，原海巡隊勤指中心改以值班室方式運作，案件處置能力及功能性已不敷運作，宜重新律定處理機制，以為因應：
- 1、船舶失去動力、擱淺、碰撞、失火等事故，無立即危險者：由海巡隊依作業流程處理。
 - 2、船舶失去動力、擱淺、碰撞、失火等事故，傷亡人數4人以下者：原由海巡隊處理改由總局成立應變中心二級開設，由勤指中心與業務組協同作業，指揮調度海巡隊搜救作為。
 - 3、船舶失去動力、擱淺、碰撞、失火等事故，傷亡人數5人以上者：由總局成立應變中心一級開設，召集編組人員進駐作業。

二、律定海巡單位處理流程

- (一) 值班室值日員接獲海難通報後，除邊受理、邊處置、邊通報外，應即確認信息、查明遇難船舶資料、遇險原因、遇險時間、位置（含經緯度）、航向、航速、當地海象、人員狀況，並與國搜中心、海岸電台及漁業電台保持密切通聯。

22 nautical miles off Suao port the next day. Maritime Patrol Units were criticized severely by the media for poor rescue skills, making all the hard-work and efforts of all maritime patrol guards go down the drain.

IV. Quality Improvement

(I) Re-regulate accident management mechanism

1. According to the regulations of "Maritime Rescue Execution Plans of Maritime Patrol Directorate General", all offshore flotillas, when being notified of maritime disasters happening within their responsibility area, should set up emergency response center according to the actual conditions (accidents that involve no injuries or death casualties should be excluded). In addition, according to the regulations of "Work Procedures for Maritime Patrol Agency when Executing Maritime Rescues", maritime disasters that involve less than 5 victims, excluding no injuries or death casualties, the Patrol Area should set up an emergency response center for coordinating search assignments.

2. After Patrol Areas being set up, Duty Command Center will be operated in the way the duty room operates. Its abilities and functions to handle cases are no longer good enough. It is advised to re-regulate accident management mechanism in order to take care of the following situations:

- (1) For cases that stricken boats lose power, get stranded, get collided or catch on fire but pose no immediate danger, they will be handled according to the work procedures of Maritime Patrol Corps.
- (2) For cases that stricken boats lose power, get stranded, get collided or catch on fire and the numbers of injuries or casualties are less than 4, they will be reassigned to Maritime Patrol Directorate General. It will set up a 2nd -degree emergency response center. The Duty Command Center will coordinate with The Business Division to command and dispatch the rescue mission.
- (3) For cases that boats lose power, get stranded, get collided or catch on fire and the numbers of injuries or casualties are more than 5, they will be handled by Maritime Patrol Directorate General. It will set up a 1st degree emergency response center and summon staff of related divisions to work on the rescue mission.

(II) Regulate Maritime Patrol Units' Process Procedures

1. When officers on duty receive an emergency distress call, they will start to process, handle and report the case while confirming the

- (二) 值班室運用雷情系統，監視掌握船隻航行狀況，並利用歷史航跡回放功能掌控事故發生點，確認事發位置。
- (三) 值班室值日官立即將所得資訊，通報線上巡防艇趕往現場搜救並分配搜索海域，及報告隊長視需要調派隊上其他艦艇緊急出動救援，隊長全程指揮海難救助工作。
- (四) 巡防艦艇接獲海難通報後，立即趕往事故現場，展開搜救行動，由隊長指派先行抵達案發地高階人員為現場指揮官。
- (五) 視案情需要轉報總局動指中心申請直升機救援。
- (六) 現場指揮官參考海流流速、風向風速、遇難船舶漂流速度、遇險信息發出時間及位置、救難艦艇預計抵達時間等各項數據建立搜救基點，並依巡防艇相關方位、順位、分配搜索區域，律定間隔水域、搜索模式，選定搜救模式準則如下：

- 1、擴大四方形搜救：適用小範圍搜救，搜救單位單一，目標位置確定。
- 2、扇形搜救：適用小範圍搜救，搜救單位單一，目標位置確定。
- 3、平行搜救：適用大範圍搜救，搜救單位單一或數個，目標位置為大略位置。
- 4、海空聯合搜救：適用大範圍搜救，運用直升機往返飛航與巡防艇航向垂直形成交叉搜索網。



message, finding out information of the stricken boat, causes, time and location (longitude and latitude) of the accident, the stricken boat's course, speed, the weather of the location, condition of the crewmembers, and stay in contact with National Rescue Center, Coast Radio Station and Fishing Radio Station.

2. Duty room will monitor boats in the ocean with radar display system and use historical track playback function to control and confirm the locations of accidents.
3. Officers on duty will immediately inform all information gathered to the frigate on the way to rescue, assign search area and report to the Flotilla's Captain. The captain will then, depending on the actual situation, dispatch other frigates from the flotilla for emergency rescue mission. The Captain will oversee the rescue mission throughout the whole process.
4. Once the frigate receives the emergency distress call, it will immediately rush into action and start the search activity. The captain will order the highest ranking officer arriving at the scene as Commander at scene.
5. Commander at scene will, depending on the actual situation, report to the Duty Command Center of Maritime Patrol Directorate General, asking for helicopter assistance.
6. Commander at scene will review the data of ocean current speed, wind speed, drift speed of the stricken boat, the time and location of the sent distress message, EDT of the rescuing frigate and then set up a search base. He will, then, choose search patterns base on frigate's relevant positions, tonnage, assigned search area, regulated buffer water area and search modes :
 - (1) Expanded Square Search Pattern: it is suitable for small search range. There is only one search unit and the position of the target is confirmed.
 - (2) Fanning Out Search Pattern: it is suitable for small search range. There is only one search unit and the position of the target is confirmed.
 - (3) Parallel Search Pattern: It is suitable for big search range. There are 1 or several search units and the position of the target is rough.
 - (4) Sea & Air Joint Search Pattern: It is suitable for big search range. Helicopters' flying back and forth and frigates' vertical courses form an overlapping search net.
7. To oversee the subsequent conditions of the accident and report to the Duty Command Center, Maritime Patrol Directorate General, so that it may command the offshore flotilla's frigate on duty in the nearby area for backup support.

- (七) 持續掌握海難現場後續狀況，通報總局勤指中心指揮鄰近海巡隊之線上巡防艦艇支援。
- (八) 發現人、船，以救人為優先，若有生命危險，施以急救並儘速返航送醫。
- (九) 未發現人、船，參考潮汐、海流、風向等因素，現場指揮官應重新修正搜救基點，妥適運用現場搜救能量，重新變更搜救部署，各艇並將搜救情形詳載於巡邏日誌內，以供備查。

三、強化勤指中心作業功能

- (一) 為因應海上各種狀況處置，遴選具備豐富海上實務經驗同仁擔任執勤官員，並定期施以教育訓練，以充實海事專業知能及法律素養。另策訂激勵方案，使優秀執勤官員產生強烈工作意願及使命感。
- (二) 為強化非上班時段勤務指揮作為，自本(96)年8月7日起實施本總局主官、總值日官輪值制，主官由總局長、副總局長及主任秘書輪流擔任，總值日官由巡防組、海務組、船務組、後勤組、督察室、秘書室、勤指中心及研習中心等組室主管擔任，負責本總局海難事件勤務指導作為。
- (三) 為利案件發生時能迅速掌控全盤狀況，要求落實三線系統通報。

四、建立轄區基礎水文資料

各隊分隊長(艇長)以上幹部(含隊長、副隊長)於11月底前皆能透過網路鏈結查詢海科中心海洋資料庫、氣象局海象預報觀測資料、港研中心港灣環境資訊及本總局遇案建置之「海難搜索救助管制表」，配合轄區海圖，積極建立轄內海域之海流、潮流、風浪等水文資料，適時掌握事故附近海況，推估遇險目標漂流位置，以進行有效搜索。

- 8. After finding the stricken boat and crewmembers, the first priority is always crewmembers on. If anyone is in critical condition, provide first-aid medical assistance right on the spot and return to port as soon as possible for medical treatment
- 9. Failure to find people or the stricken boat, after reviewing factors of tidal waves, ocean current and wind direction, Commander at scene will readjust the search base and utilize properly the search capacity at scene. He will also readjust the search deployment. All frigates will need to record the search details in the patrol log for reference.

(III) Reinforce the processing function of the Duty Command Center :

- 1. To handle all kinds of maritime situations, Maritime Patrol Directorate General will select colleagues of great practical maritime experience as officers on duty and give them regular educational training in order to enhance their maritime professional knowledge as well as law cultivation. In addition, set up incentive programs to motivate excellent duty officers to develop strong desires to work and a strong sense of mission.
- 2. To strengthen the duty command activities during non-office hours, a new system of rostering the Head and the Chief Duty Officer of Maritime Patrol Directorate General will be implemented from August 7th, 2007. Chief director, deputy director and chief secretary will take turns as the Head. Directors of Department of Coastal Control, Marine Section, Ship Affair Section, Logistics Section, Inspector's Office, Secretary Office, Duty Commander Center and Study Center will take turns as the Chief Duty Officer and is responsible for the duty guidance on maritime disasters of Maritime Patrol Directorate General.
- 3. In order to get on top of the whole situation when a maritime accident happens, it is necessary to implement 3-line-system reporting.

(IV) Establish basic Hydrological Information of each jurisdiction

Senior officers, captains of vessels (including captains and deputy captains) of offshore flotillas will have full access to Oceanic Data Base of National Oceanic Research Center, Weather Prediction and Observation data of Central Weather Bureau, Harbor Environment Data of Harbor Center and " Maritime Search & Rescue Control Chart " for each case executed by Maritime Patrol Directorate General by the end of this November. With the access and the marine chart of each jurisdiction, all offshore flotillas must

五、運用海域科學資訊系統

(一) 掌握海流狀況，不僅攸關船舶航行安全，對海難發生時人船漂流預測更是不可或缺的消息。日本海上保安廳對於船難事故，為了救人及保護海洋環境，進行日本「沿岸海域流況預測模式（海域流場實驗）」開發，能迅速準確的預測目標漂流方向與範圍，大幅減少時間計算與誤差，轉而運用於迅速派遣艦艇、直升機前往救援，係運用科學方法取得搜救相關資料之成功案例。

(二) 氣象局94年委託工研院，研發「沿岸海域安全資訊系統」，現在正進行試用階段，預計96年底建置完成，可提供海上漂流物流向分析預報技術，基於國家資源共享原則，本總局各海巡隊可透過外部網路鏈結氣象局海象測報中心試用查詢（試用網址<http://140.96.175.47/website/msis>），僅需輸入遇險位置經緯度、時間、流速流向、風速風向、預計抵達時間等相關數值參數，即可推估漂流目標之軌跡範圍，以科學方式劃定搜索區域，提高搜救效率。

六、與媒體保持適切之互動

海難案件發生時，應隨時與媒體進行互動聯繫，並派出適當人員，儘速提供現場資料與處理作為，讓民衆瞭解，避免媒體未獲充分及正確資訊，不能周延完善報導，產生誤解及負面報導。



establish hydrological information of ocean current, tidal waves, wind and wave within the sea area of the jurisdiction in order to oversee marine conditions of the accident locations and predict drift positions of the search targets for effective search.

(V) To utilize oceanic science information system.

1. To effectively control ocean current status matters not only the safety of the boats in the ocean but also to the drift prediction of the victims and boat of a maritime disaster. To handle maritime disasters, Japan Coast Guard has developed "Coastal Ocean Current Prediction Mode (Experiment of Sea Area Flow Pattern)" in order to save people and protect maritime environment. It can predict the direction and range of the drifting target fast and accurately, minimizing calculation time and errors and dispatch promptly frigates and helicopters for rescue mission. It is a successful case of using scientific method to obtain relevant search information.

2. Central Weather Bureau commissioned Industrial Technology Research Institute of Taiwan to develop "Costal Sea Area Safety Data System". It is currently on trial stage and is estimated to be completed in the end of 2007. This system will provide directional analytical prediction technology for drifting objects in the ocean. Under the principal that all national resources must be shared, all offshore flotillas of Maritime Patrol Directorate General may link through external net to Weather Prediction Center of Central Weather Bureau on trial basis. (Website for trial : <http://140.96.175.47/website/miss>). All you need to do is type in relevant parameters such as longitude and latitude of the maritime disaster location, time of the disaster happened, ocean current speed and direction, wind speed and direction, ETD of the rescue team....and you can predict the range of the drifting target and mark out the search areas with scientific method and, therefore, increase rescue efficiency.

(VI) To keep proper interaction with the media

When a maritime disaster happens, it is necessary to keep mutual contact with the media and send appropriate staff members to provide update of the accident and the procedures for how it is handled as soon as possible. The reasons for doing so is to let civilians know about accident and avoid media from being unable to report the accident as it is because of insufficient and incorrect information which will lead to misunderstanding and negative reports.



七、宣導漁民安全防護觀念

日前屏東縣墾丁青蛙石海域2名外籍遊客騎乘水上摩托車落海，因有穿著反光條救生衣，空偵機於事故海域搜尋，容易辨識落海人員方位，成功救起落海遊客。檢視「新協發號」案，船長落海若能穿著救生衣，將更突顯辨識度，提高搜救成功率。為避免類案發生，要求本總局各海巡隊透過漁業電台、漁民集會及海巡服務工作座談會機會，宣導漁民正視海上安全防護觀念，落實船舶安全檢查及船舶救生設備，以維漁船作業及航行安全。

伍、結語

俗話說：「救人一命，勝造七級浮屠」，民衆在海上遇難，最期待的是海巡人員能夠及時出現，因此同仁應秉持「人溺己溺」之精神趕往救援。海難搜救任務，具高度危險性與專業性，亟需專業技術與設備配合，因應未來各種海難事故，須以科學方式執勤，避免憑感覺盲目行事，方能提升搜救能量，圓滿達成搜救任務。

(本文作者任職於海洋巡防總局海務組)



(VII) To Promote ideas of fishermen's safety and protection

Just some time ago, 2 foreign tourists had fallen off a jet ski in Cingwashih sea area, Kenting, Pingtung, however, because they wore life jackets

with reflective tape, the air patrol helicopter was able to spot them easily while searching in the sea area where the accident happened. The tourists were rescued in time. Reviewing the case of "Sin-Sie-Fa" fishing boat, if the captain had worn a life jacket, it would certainly increase his visibilities and chances for saving him in time would certain be increased. To avoid history repeating itself, all patrol units of Maritime Patrol Directorate General are requested to promote the ideas that fishermen should take their safety at sea seriously through fishing radio stations, fishermen gatherings and forums for maritime patrol services. Our ultimate goal is to make sure the safety check for the fishing boats and life-saving equipment on board are carried out so that the safety of fishermen and fishing boats at sea is safeguarded.

V. Conclusion

There is an old Chinese saying "To save a human life is better than building a seven storied-pagoda.". When maritime disasters happen, civilians certainly hope the maritime patrol officers will come to their rescue in time. Therefore, we, as maritime patrol officers, should uphold the spirit "safety for people first" and come to their rescue in the first place. Rescue missions are extremely dangerous and require professionalism. In order to execute rescue missions successfully, professional technologies and equipment are indispensable. To handle all kinds of maritime disasters in the future, we must execute our duties based on scientific methods and avoid acting on intuitions. Only when we achieve that, can we increase our search capacity and complete each and every rescue mission successfully.

(The author of this article currently works at Sea-Affair Section, Maritime Patrol Directorate General).