

A Plan for Reducing SAR Call-outs for Fishing Vessels in Korean Waters

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Abstract : Korea has a systemic problem with lack of engine maintenance, especially among the Commercial Fishing Vessel fleet. This results in a inordinate percent of SAR call-outs for vessels with engine failure. These SAR call-outs lead to a free tow to shore by KCG or by one of its volunteer associates. Although these tows are not a terrible economic burden on KCG, it is a burden in terms of time and resources mis-allocated. This paper proposes a Commercial Fishing Vessel Examination (CFVE) program modeled after the program run by USCG. It is expected that adopting the CFVE program, KCG may be able to create a culture of safety among fishermen; thus, replicating the USCG's success rates.

Key words : Commercial Fishing Vessel, USCG, safety inspection, KCG, SAR

1. Introduction

Korea Coast Guard provided six and a half years of SAR call-out data (Smith, 2014), and a five year period from January 2008-December 2012 was selected. During that five-year period, KCG recorded 6,849 maritime SAR call-outs. Three factors stood out among all others: the type of vessel involved in the incident, the type of incident, and the cause of the incident. The most common SAR call-out was a Commercial Fishing Vessel (CFV) with engine failure due to poor maintenance. This paper explains the problem, suggests how it may have come about, and offers a possible solution to mitigate and lessen these types of SAR call outs based on the USCG's Commercial Fishing Vessel Exam program.

2. SAR Call-outs in Korean Waters

The first factor is type of vessel. Out of the 6,849 SAR cases recorded by KCG, 4,694 of those cases involved CFV, accounting for 68.5% of all SAR call-outs (Fig. 1).

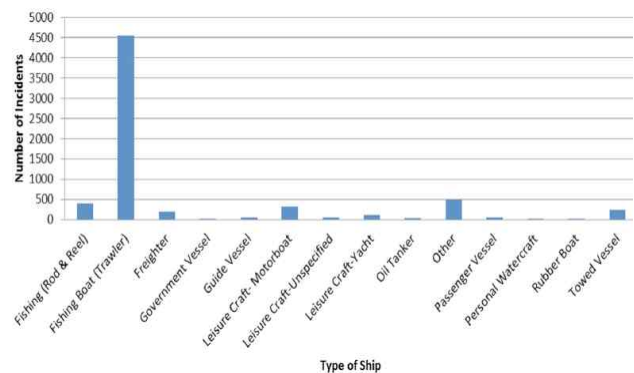


Fig. 1 Number of incidents by type of ship (2008-2012)

Considering the importance of the fishing industry in Korea and the number of CFV registered in Korea, this high percentage is neither surprising nor troubling in itself.

The second factor is the type of incident. Out of 6,849 cases, 2,618 incidents were engine failure, accounting for 38.2% of all cases (Fig. 2). This is over three times higher than the next most common incident, flooding.

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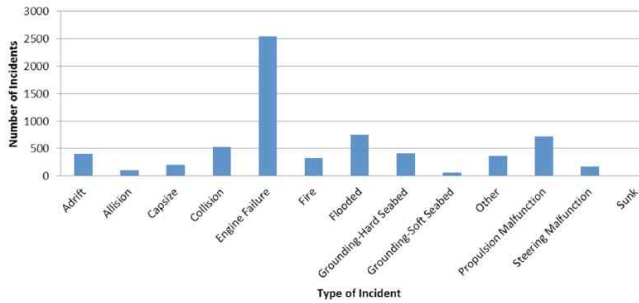


Fig. 2 Number of incidents by type of incident (2008-2012)

Engine failure is a major problem in Korea, and it is necessary to discern the cause of these engine failure incidents, which brings us to the third factor: the cause of incidents. The Korea Coast Guard data shows that the most common cause for engine failure is poor maintenance (Fig. 3). Out of 2,618 engine failure cases, 2,137 (81.6%) were caused by poor maintenance.

When these three factors are taken together—that is, when looking at Commercial Fishing Vessels with Engine Failure due to Poor Maintenance—one can see that 1,607, or 23.5% of all SAR call outs are of this particular combination.

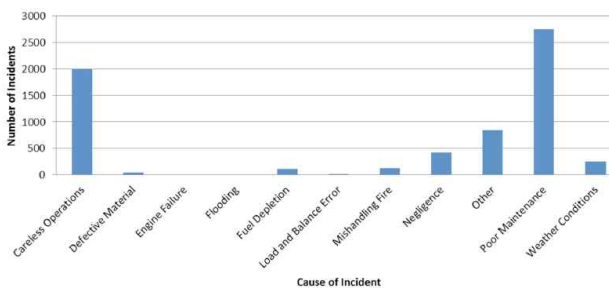


Fig. 3 Number of incidents by cause of incident (2008-2012)

The next most common combination (non-fishing vessel with engine failure due to poor maintenance) accounts for 566 cases (8% of SAR call-outs) over the same five year period. It is interesting that Engine Failure due to poor maintenance is the number one reason for SAR call-out with both fishing and non-fishing vessels. This indicates a problem across the board with engine maintenance in Korea.

Looking once again at Fig. 3, one can surmise that several of the “Other” cause for engine failure can be directly attributed to poor maintenance. The “Other” category is useful for an owner/operator who wants to hide his lack of engine maintenance from public record. It would

be quite fair to consider Neglect synonymous with Poor Maintenance. The owner/operator did not maintain the engine poorly; he neglected to maintain the engine at all. Material Defects are very likely due to poor maintenance or neglect, since modern manufacturing standards and practices such as ISO-9001 and Six Sigma prevent defective parts from being shipped to the market. Therefore these three categories are added to the final total of Engine Failure due to Poor Maintenance, bringing the number up to 2,496 SAR call-outs for all vessel types. Limiting this paper to CFV alone, the number of SAR call-outs is 1,847, or 27.0%, a figure that indicates a systemic problem. Let us take a moment to consider what could cause owners/operators of CFV to neglect or poorly maintain their engines.

3. Probable cause of poor maintenance

Nearly a decade ago, the KCG decided to tow not under command Korean small fishing boats free of charge. While it has not cost a lot in monetary terms, it has cost a lot in lost productivity and the mis-allocation of resources that could have put to better use than towing fishing vessels with bad engines.

In short, the free-tow policy created a “moral hazard” in the Commercial Fishing industry. Moral hazard is the situation when one party acts irresponsibly because it knows that another party will accept the consequences. In this case, CFV owners/operators knew that KCG would accept the consequences of their poor or neglectful maintenance. When the KCG promised to provide tows or to reimburse volunteers for tows performed on behalf of the KCG, it created a situation that allowed CFV owners and operators to cease maintaining their engines properly. Prior to that decision, owners/operators maintained their engines because failure to maintain their engines meant paying for a tow from a private company. Once KCG began providing free tows or paid third parties to provide tows, the need to maintain engines was eliminated. Owner/operators knew they had a free ride back to shore. Meanwhile the KCG accepted the risk of the vessel’s engine failure. In short, this was a well-meaning but mistaken policy decision and it created a moral hazard that manifests itself in a very disproportionate number of SAR call-outs. This paper now offers a possible solution: adopt the Commercial Fishing Vessel Exam program as run by the USCG’s volunteer organization, the USCG Auxiliary.

4. Proposed Solution

According to the Fishing Act, Korean registered fishing vessels shall take periodical surveys every 5 years and intermediate surveys between periodical surveys in order to maintain safety conditions. Nevertheless, as stated in the previous chapter, about 70% of marine incidents involved fishing vessels in Korean waters and the main cause was engine failure due to poor maintenance. Accordingly, it appears that either Korea Coast Guard or the Ministry of Oceans and Fisheries needs to take specific measures to prevent marine incidents involving fishing vessels.

The first step to reducing the number of SAR call-outs for Fishing Vessels with Engine Failure due to Poor Maintenance is to eliminate the free-tow policy. However, fishing boats have enjoyed free tows for so long that KCG needs to offer fishing vessel owners/operators a program to help them overcome the consequences of their moral hazard. It is suggested that a safety examination program like the Commercial Fishing Vessel Exam (CFVE) program based on that used by USCG and USCG Auxiliary be introduced.

4.1 About the USCG CFVE program

Many years ago, USCG implemented the CFVE program to enhance CFV safety. The USCG Boarding Report Form warns CFV owners/operators that, “Fishermen are strongly encouraged to take advantage of the Voluntary Dockside Examination (VDE) Program. The VDE can save you time and money and more importantly may increase your chances of surviving a marine casualty.” (USCG, 2008)¹⁾ (VDE and CFVE are synonyms.)

CFVE are dockside safety examination performed by the USCG and USCG Auxiliary as a courtesy—that is, free of charge. These are not ship surveys, nor are they inspections properly speaking. The CFV examiner is looking for safety issues, not regulatory violations. Even if the CFV fails the exam, the CFV is allowed on the water; the examiner only gives the owner/operator a check list of items that will bring the boat up to established safety standards. USCG calls these dockside examinations a “NO fault / NO penalty” exam. (USCG, 2008) Furthermore, an examiner cannot recommend to USCG law enforcement to board or take action against the failed CFV. These policies

are meant to prevent an adversarial relationship that would prevent CFV owner/operators from taking advantage of the free CFVE.

If the CFV passes the examination, the CFV receives a window decal indicating that it has met or exceeded safety standards. (Fig. 4) In that case, if the CFV is boarded by a USCG law enforcement team at sea, the CFV is less likely to endure an in-depth inspection; the boarding officer assumes that, having passed the CFVE, the owner/operator is reasonably conscientious. As the USCG CFV Boarding Report form says, “The presence of a valid examination decal may reduce your chances of being boarded or greatly reduce the at-sea boarding time spent on safety checks.” (USCG, 2008)

USCG makes it clear to owners/operators that even though the CVFE is no fault and no penalty, once a CFV has been boarded, it is very much in the owner’s/operator’s interest to get the boat examined for safety issues. “If you receive a ‘NOTICE OF VIOLATION,’ correct the discrepancy as soon as possible. A completed Voluntary Dockside Examination will reduce the likelihood of being assessed a monetary civil penalty.” (USCG, 2008)



Fig. 4 The USCG CFVE decal.

If one recalls the old tale of motivating a donkey with a carrot or a stick, USCG much prefers to offer carrots to CFV owners/operators, and it seeks voluntary compliance. CFVE is a very generous carrot to help CFV owners/operators correct themselves so that USCG does

1) Interested readers can find the Boarding Report form on-line: <http://www.uscg.mil/d13/cfvs/PDFs/CG4100F.pdf>

not have to use the stick and assess civil penalties (which can be up to \$5,000 per violation).

CFV owners/operators can call a toll-free number or go on-line and schedule a CFVE at their own convenience. There is no paper request form. Furthermore, USCG has an on-line checklist generator²⁾, so the owner/operator can input his vessel's specifications and get a checklist of all the safety equipment he needs to pass the examination.³⁾

Although these CFVE were once voluntary, as of October 15, 2015, CFV exams will be mandatory for all vessels that operate 3 miles or farther from shore (Christensen, 2012). The exam will remain free.

4.2 Training qualified CFV examiners

The backbone of any program is well-trained personnel. As of 2010, the USCG has sought to increase the number of CFV examiners by using the Auxiliary as a pool of talent, and if KCG chooses to implement a CFVE program, it should also consider using civilian volunteers from MARSAs-Korea to increase the workforce. Auxiliarists are expected to meet the exact same standard as the paid active duty, reserve, and civilian personnel (USCG, 2007).

To accomplish this, an Auxiliarist must fulfil a Performance Qualification Standard (PQS) that has a list of laws and regulations with which the Auxiliarist must become very familiar. These include Titles 33 and 46 of the Code of Federal Regulations, USCG manuals, and several USCG Navigation and Vessel Inspection Circulars (NVIC).⁴⁾ In addition to this academic self-study, the Auxiliarist must attend a classroom course, perform practice dockside exams, and pass an oral board. After all of this the verifying officer will sign-off on the candidate's PQS booklet, at which point the command authority issues the Auxiliarist a Letter of Designation. The Auxiliarist is then made available to the District Commercial Fishing Vessel Safety Coordinator, and the Auxiliarist can be assigned to CFVE duty (Christensen, 2012).

It is a long and arduous process. However, CFV owners/operators can be confident that the Auxiliarist is a

consummate professional, even if an unpaid volunteer. In 2013, there were 232 CFVE qualified Auxiliarists who volunteered 2,091.5 hours performing exams that same year, plus an additional 4244.2 hours in outreach, support, and training.⁵⁾

There is one caveat: the volunteer must not have any affiliation to the commercial fishing industry, as an owner, operator, employee or family member of a person with a vested interest in the commercial fishing industry. If giving free tows created a moral hazard, surely allowing fishermen to examine other owners' and operators' vessels is too much of a conflict of interest.

4.3 Results of USCG's CFVE program.

The USCG's CFVE program began in 1988 with the passage of the Commercial Fishing Industry Safety Act of 1988, which was codified into regulations under Title 46 U.S.C. §45 (see also 46 CFR part 28). Since then, there has been a noticeable downward trend in lost vessels and fatalities (USCG, 2011). USCG does not track CFV incidents in the same way that this paper has discussed Korean CFV with Engine Failure due to Poor Maintenance. Rather, USCG is looking for major incidents that result in lost vessels and lost lives. However, since the CFVE program has been effective in reducing major incidents, it is safe to assume that CFVEs could reduce minor incidents, such as engine trouble or drifting.

Of all 2,072 vessels lost in U.S. waters in the period from 1992-2010, 1,319 (63.7%) did not have CFVE decals and 373 (18.0%) had expired decals for a total of 81.7%. Meanwhile 368 (17.8%) had current decals (The decal status of the remaining 12 vessels (0.5%) is unknown) (USCG, 2011). This indicates that having a CFVE significantly improves the vessel's chance of surviving an incident.

In terms of lives lost, out of 564 deaths in the same period from 1992-2010, 340 (60.3%) were on vessels with no decal and 70 (12.4%) were on vessels with expired decals. 150 lives (26.6%) were lost on vessels with current CFVE decals. 4 lives (0.7%) were unknown. Further

2) Interested readers can see this checklist generator, and make their own checklist at:

<http://www.uscg.mil/d13/cfvs/docksideexams.asp>

The checklist generator does not exist in paper form.

3) Interested readers can find the official CFV examination form on-line at:

http://www.uscg.mil/d13/cfvs/PDFs/CFVS_ExamBookletCG-5587Rev_06_08.pdf

4) Interested readers can find the PQS on-line at:

http://wow.uscgaux.info/Uploads_wowII/P-DEPT

5) These figures come from a USCG Auxiliary member-only database, AUXDATA. Not available to the public.

investigation showed that the incidents were so sudden that crew members could not use any safety equipment or put on survival suits (USCG, 2011).

These results are promising, but since CFVEs during this period were voluntary, the sample may have a self-selection bias. That is, the CFV owner/operators who availed themselves of the CFVE may have been more conscientious fishermen to begin with. Since the CFVE program will not be mandatory until autumn 2015, USCG does not yet have data to compare with existing data.

Mr. Jack Kemerer, Chief of the Fishing Vessel Division of the USCG, admitted that the improvements in fishing vessel safety were not due only to the CFVE program, but rather the CFVE program is one of several variables that have improved safety in the USA's commercial fishing industry. In fact, he even stated that the CFVE program was not made mandatory because of overwhelming statistical evidence, but rather because of anecdotal evidence: the USCG has sensed that the CFVE program has created a "culture of safety" among the fishermen who take advantage of the program. The CFVEs are becoming mandatory in hopes that the culture of safety will spread to the rest of the industry. This change will effect approximately 15,000-20,000 commercial fishing vessels.⁶⁾

As mentioned earlier in this paper, Auxiliarists play a role in performing CFVEs on behalf of the USCG. He said that the USCG CFVE office has budgeted about \$35,000-40,000 USD to support Auxiliarists who perform CFVE missions. Most of this money goes toward training Auxiliarists at the official CFV examiner C-school at USCG Training Center Yorktown. Auxiliarists receive exactly the same training as paid USCG personnel. There are approximately 100 Auxiliarists currently qualified to perform CFVEs.⁷⁾

5. Implementation in Korea

Implementing a CFVE program in Korea should not be difficult, but may take several years to fully work a system into place. Implementing a CFVE program may require a partnership between MOF, who has regulatory authority, and KCG who has law enforcement authority (In the USA, USCG is both the regulatory agency and the law enforcement agency for maritime affairs). KCG can also

bring its volunteer affiliate, the Marine Search & Rescue and Salvage Association of Korea (MARSA-Korea), into action, as the volunteers can become qualified CFV examiners, just as with the USCG Auxiliary. This will increase the workforce while keeping program costs down. In the USCG, volunteers are only paid a per diem rate to help defray personal expenses, but are not paid a salary (Christensen, 2012).

It may not be as simple as merely taking the USCG program and putting it into place in Korea. While the USCG program is excellent, imposing such a program instantly upon the Korean CFV industry may cause animosity and an adversarial relationship.

At first, a team of experts from MOF, KCG, and MARSA should assemble and examine how the USCG program can be adapted to Korea. For example, the safety requirements are likely the same, being based on SOLAS and other international conventions. However, US law and Korean law are different, and every place a specific US law is cited, the pertinent Korean law must replace it. This implementation team may want to involve the USCG or USCG Auxiliary personnel stationed in Korea to help clarify the USCG documents and system, and then the Korean personnel can better adapt the USCG system with a sensitivity to Korean legal customs and cultural norms.

Second, the MOF/KCG/MARSA implementation team should establish a joint database of all CFV in Korea, which will include all vessel information in the same way that the Department of Motor Vehicles tracks all land vehicles. The database will hold dates of surveys and inspections, and arrange for CFV dockside examinations for off-years to fill the gaps between surveys and inspections. USCG does not have a database like this, as CFVEs were, until recently, voluntary.

Also, when implementing the CFVE program, the MOF/KCG/MARSA database can select the oldest vessels to be examined first, and spread the initial exams out over a five year period. The database can generate mailings to invite CFV owners/operators to enjoy a free safety exams, just as the Department of Motor Vehicles sends car owners inspection notices every two years. The great benefit to mariners is that CFVEs are conducted where the CFV already are, not at a centralized or inconvenient location as

6) Jack Kemerer, telephone interview with the author, September 30, 2014.

7) *ibid.*

is the case with car inspections. In this way, neither the industry nor the KCG or MARSAs volunteers will be overwhelmed by the new CFVE requirements.

This kind of CFV database and data analysis is one innovation by which Korea can greatly improve upon the USCG system. It is very likely that existing MOF and KCG databases will only need to be consolidated and streamlined, rather than a new database built from scratch.

Korea can also take its time while implementing the CFVE program. Unlike USCG which decided to make the CFVEs mandatory prior to having enough qualified examiners, Korea has the luxury of taking a year or two to train a large enough corps of qualified examiners to ensure that all Korean CFVs can receive their initial exams in five years and periodic re-examinations between surveys and inspections.

One major difference from the USCG CFVE needed in Korea is an engine component. USCG only looks at very minor engine issues such as safety placards. In the Korean CFVE, since so many incidents are engine related, there needs to be a stronger test of engines. It need not be sophisticated, simply a “sniff test” in which the examiner smells for fuel which would indicate a leak, and a “look test” in which the examiner looks for signs of fuel leaks like oily water in the bilge. This would lead CFV owners/operators to keep a clean and well-maintained engine, vastly reducing this category of SAR call-out.

In this way, Korea will lead Asia—perhaps the world—in Commercial Fishing Vessel examinations. Once the Korean CFVE program is in place, Korea can then help less developed Asian nations to implement their own programs, based on Korea’s success, which will hopefully lead to safer seas while simultaneously reducing KCG SAR mission-load. Although it is impossible to eliminate all SAR incidents of engine failure due to poor maintenance, adding an engine component to the exam could make the number of these call-outs negligible.

As in the USA, Korea seeks to build a culture of safety among fishermen, and by creating such a culture of safety, we can expect that KCG will endure fewer needless SAR call-outs for minor incidents like engine failure that distract KCG from more important missions.

6. Conclusion

This paper discovered that CFV accounted for a staggering 68.5% of all SAR call-outs, and that 27% of all

KCG SAR call-outs are CFV with engine failure due to poor maintenance or owner neglect. This may be due largely to the moral hazard created by the KCG’s free tow policy. These high percentages indicate a systemic problem. The proposed solution is to eliminate the free tow policy and to implement a CFV examination program modelled on the USCG/USCG Auxiliary program. This program has been made mandatory for all vessels working past the 3-mile boundary.

Implementing such a program in Korea should be neither difficult nor expensive. The keys to success will be proper planning (not rushing to implement), creating an atmosphere of cooperation and helpfulness, rather than an adversarial relationship with fishermen, and finding and training volunteers to help KCG carry out this vital mission. Upon making these changes, it is expected that the number of CFV having engine failure due to poor maintenance and neglect will drop significantly. Perhaps across the entire fleet of CFV, if KCG can replicate the USCG’s success rate, it can be expected that only 20% of vessels with decals will suffer incidents, and of these engine failure due to poor maintenance will become a non-issue. Then, KCG can spend its time and resources on higher priority missions.

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