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A PORT-BASED FISHING SAFETY INSTRUCTOR NETWORK, AND THE SECOND FOLLOW-UP STUDY OF ITS EFFECTS ON FISHING FATALTIES (1995-1999) IN ALASKA

Jerry Dzugan, M.S.I.
Director, Alaska Marine Safety Education Association (AMSEA)
Sitka, Alaska, U.S.A.
E-mail: amsea@alaska.com

From 1980 to 1989, Jerry worked as a commercial fishermen in the halibut and salmon fisheries in Alaska. From 1987 to present, Jerry has been Director of the Alaska Marine Safety Education Association, which is responsible for training and maintaining a network of fishing vessel and marine safety instructors in Alaska and in other ports of the U.S.

BACKGROUND

Alaska is a land of superlatives: spectacular wilderness, rich wildlife and bountiful fisheries. If Alaska were a separate nation, it would rank as one of the world's top ten fisheries in terms of value, worth over a billion U.S. dollars a year. Unfortunately, these superlatives also apply to Alaska's extreme weather, great distance from rescue, frigid water and high fishing fatality rate.

The Alaska Marine Safety Education Association (AMSEA) was formed as a non-profit organization in the early 1980s in response to the great number of marine related fatalities in the state. It was a grass roots effort, started in Kodiak and Sitka, collaborating with fishermen's organizations such as fishermen's wives, as well as state and federal agencies such as Alaska Sea Grant, Alaska Vocational Technical Center, the U.S. Coast Guard (USCG), Alaska Observers Center, and the National Institute for Occupational Safety & Health (NIOSH).

AMSEA's first priority was to create and maintain a port-based Marine Safety Instructor-Training (MSIT) network that could deliver relevant hands-on marine safety training to Alaska's far flung fishing communities. These port-based

MSITs have experience in local fisheries and have credibility and contacts within the local fleet to conduct and facilitate training.

MSIT training began with a pilot project in 1983 and since that time almost forty of these week long courses have been held, which have trained over 500 Marine Safety Instructors (MSIs) on most coasts of the U.S.. These MSIs, who work for a diverse group of private and public entities, have in turn trained over 100,000 people in various marine safety courses in Alaska, the U.S. and overseas. The people they in turn train include fishermen, agency personnel, school children and professional mariners. AMSEA's next priority has been to maintain the MSIT network with updated cold water related curriculum, educational productions, and training supplies.

In 1991, the USCG required that monthly drills in emergency procedures be conducted on many documented fishing vessels. There are approximately 30,000 of these documented vessels in the U.S. The USCG also required that by 1994, the person conducting these drills be formally trained in the contingencies required during drills.

In 1991, AMSEA developed an 18-hour Drill Instructor (DI) course that was USCG approved and also follows the International Maritime Organization's (IMO) Personal Survival Module. The DI class focuses on the use of survival equipment and proper procedures to use during vessel casualties. It is a hands-on, skills based course. AMSEA then used its MSIT network to deliver the DI course to fishermen's home ports. Most of the participants in the DI course were fishermen who could deliver the monthly drills to their own crews.

Since 1991, over 4,000 people have been certified by AMSEA to be Drill Instructors in over 370 courses. Most of these DIs reside in Alaska. This group represents more than one drill instructor for every two documented boats in Alaska. This is probably the largest single group of trained Alaskan DIs. Important to this study is the fact that AMSEA maintains a database of names and addresses of those trained in this course. Therefore names of survivors and fatalities can be matched to casualty databases. Other AMSEA trained MSIs in other parts of the nation have developed their own USCG approved courses and are not part of our database of trained DIs.

From the period of 1991 to 1999, fishing vessel fatalities in Alaska have demonstrated a downward trend, even though the number of vessel losses

stayed roughly the same. The latter half of the 1990s saw a consistent 50 percent drop in fatalities over the first half of the 1990s [Lincoln and Conway 1999]. During the 1990s, however, not only were fishing training requirements established, but survival equipment requirements were also established. The Pacific Northwest has also seen the greatest compliance with safety training and several organizations still offer this training on the Washington and Oregon coasts.

The question remains however: has safety training been effective in reducing fatalities?

What role if any has safety training played in reducing fatalities? Were people who had safety training at lower risk to be involved in a fatality? What effect has time had between initial training and the time of a casualty on survivability? How could a study answering some of these questions be replicated for others to use? There are many anecdotal stories of fishermen who were helped in an emergency by the knowledge or skills obtained in training. Additionally, it has been observed that there are many fewer vessels lost with all crewmembers, which implies that people are learning how to survive vessel losses. But can this be quantified?

INITIAL PERKINS STUDY

Since a database exists for those trained by AMSEA, and the U.S. Coast Guard maintains a database of commercial fishing casualties (including fatalities and some survivors,) these databases were compared to distinguish fatality rates in trained and untrained groups of fishermen. The USCG originally funded a study in 1995 to examine just this issue in Alaska. This study looked at the 1,518 AMSEA DI trainees between 1991 and 1994, as well as the 159 vessel incidents within that same time frame. Of the 114 fatalities resulting from those incidents, none of the fatalities were AMSEA trained. Of the 343 survivors, 10 were AMSEA DIs from eight different vessel losses. Eight of the 86 vessels that had at least one survivor and none of the 64 vessels with at least one death had an AMSEA DI onboard. The percentage of this happening by coincidence was just two percent [Perkins 1995]. This gave a strong indication that training was having some influence on survivability.

CURRENT STUDY

Five years have passed since the initial study, and it was felt that with the greater number of people trained and the longer time span it would be worthwhile to once again try to quantify the effect safety training was having on fatality rates from the years 1991 to 1999. It is the goal of this study to conduct an ongoing periodic mechanism by which the effectiveness of safety training can be reproduced every four to five years.

In the first study, the criteria of who counted as a "save" was based on a victim basis, not an incident basis. Using a victim basis would not take into account the fact that having one trained DI onboard could have influenced the survival of the other people onboard. Therefore, data was analyzed on an incident basis, and the entire nine-year period from 1991 was examined. The results follow:

From 1991-1999 there were 234 fishing vessel incidents in Alaska investigated by the USCG in which all of the people involved were known.

There were 66 fatal incidents. Eleven of these incidents had at least one AMSEA trained DI onboard. There were 168 non-fatal incidents. Forty-four of these incidents has at least one AMSEA trained DI onboard. This fact alone demonstrates that one would be 1.7 times more likely to survive an incident if there was an AMSEA DI onboard. However, these results are not statistically significant. Further analysis will stratify by time since training occurred to see if this demonstrates significance, and to also determine optimal times for refresher training courses.

In this initial study, we looked at the difference in time between when training took place and the incident occurred. In the Perkins study, this time interval was only 9.6 months. When we looked at data for the whole decade, we found that the average time between AMSEA DI training and a fatal event was 46.8 months. The average time between AMSEA DI training and a non-fatal event was 36.8 months. It is well understood that knowledge and skills deteriorate over time. It is also widely observed that monthly drills are probably not being conducted on a majority of fishing vessels, even if they have DIs onboard.

Currently, there is no refresher training required for DIs, and voluntary refresher training efforts have been disappointing. A lifetime once-only course may be sufficient if survival equipment technology and procedures do not change, but even since 1991 there has been some change in this area. Also, if in fact, as seems to be the case, the majority of DIs are not conducting monthly drills, [Cullenberg 2000] it is likely that there is knowledge and skills deterioration. These would both speak to a need for DI refresher training. From the data on the average time span between training and a fatal incident, it seems that refresher training every five years would be appropriate. This also corresponds very closely to what exit interviews with newly trained AMSEA DIs have noted as being the most recommended time for refresher training.

Since observations have noted that monthly drills are not being conducted on most vessels, there may also be an argument for all persons working on fishing vessels to be required to take a survival course. In this way, emergency procedures and survival equipment use would be familiar to all who work in the industry. More analysis of this data needs to take place before further conclusions are drawn. A known denominator of Full Time Equivalent positions would also give a major boost to analysis. However, it can be stated with certainty that the fatality rate has been significantly reduced in Alaska for a sustained period. Since 1995, the number of fatalities in Alaska has fallen below that of the state's recreational boaters [Hargis 2000]. A replicable methodology has been developed to further research on the effects of safety training.

FOOTNOTES

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Jennifer M. Lincoln, M.S., C.S.P.
Diana S. Hudson, M.P.H.
George A. Conway, M.D., M.P.H.
Rachel Pescatore

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