

A. COVER PAGE

Project Title: National Fishing Vessel Safety Training Infrastructure	
Grant Number: 1 T03OH011921-01-00	Project/Grant Period: 09/01/2019 - 08/31/2022
Reporting Period: September, 1 2019-August 31, 2022	Date Submitted: November 11, 2022
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Change of Contact PD/PI: N/A	
Human Subjects: N/A	Vertebrate Animals: N/A
hESC: N/A	Inventions/Patents: N/A

B. ACCOMPLISHMENTS**B.1. What are the major goals of the project?**

Objective 1: Hold 20 Drill Conductor workshops to train a total of 200 fishermen in Coast Guard accepted and required Drill Conductor workshops in the three most underserved parts of the U.S. over 2 years (5 workshops per quarter for 50 people per quarter).

Objective 2: Conduct eight peer to peer workshops for a total of at least 16 new instructors over two years (2 workshops per quarter for 4 instructors per quarter).

Objective 3: Three MSIT courses for a total of 18 new instructors trained over two years (1 MSIT course in quarter 2, 3 & 4 for 6 new instructors in quarter 2, 3 & 4).

Objective 4: Four classes in four different parts of the nation for at least 20 instructors over two years (1 MSIT refresher per quarter for at least 5 instructors per quarter).

Objective 5: USCG acceptance of two new courses in first year and two in second year and ten workshops in these new Coast Guard accepted courses over two years for a total of 100 fishermen trained in these courses (1 new Coast Guard accepted course per quarter, 2 new courses taught in quarters 1 & 3 and 3 new courses taught in quarters 2 & 4, and 25 students taught per quarter).

Objective 6: At least four new schools for a total of at least 40 students in two years (1 new school apprenticeship program per quarter).

Objective 7: At least 40 Fisherman's First Aid classes to meet Coast Guard requirements with an ergonomics section to cover the causes and prevention of musculoskeletal disorders (MSDs) for 400 fishermen (10 courses per quarter for 100 students per quarter).

B.2. What did you accomplish under these goals?

Objective 1: Held 22 Drill Conductor workshops (110% of objective achieved) to train a total of 209 fishermen (105% of objective achieved) in Coast Guard accepted and required Drill Conductor workshops in the three most underserved parts of the U.S. over 3 years.

Objectives 2: Conducted 25 peer to peer courses (312 % of objective achieved) for 32 new instructors trained over three years (200% of objective achieved)

Objective 3: Held 3 MSIT classes in Louisiana, North Carolina and Texas (100% of objective achieved) for a total of 22 new marine safety instructors (122% of objective achieved).

Objective 4: Conducted 4 instructor refresher workshops in 4 regions of the U.S. (100% of objective achieved) for instructors (adapted to a distance delivery method due to pandemic) for 46 instructors over three years. (230% of objective achieved).

Objective 5: USCG acceptance of 4 new courses. 4 USCG accepted courses were written and accepted in this project period (100% of objective achieved). The first approved new class was our new Stability course. Applications for new courses have been delayed over much of this project period due to the pandemic and backlog of courses seeking approval at the USCG. At the same time, the USCG required new standards for writing renewing course approvals and this affected our 2 Drill Conductor and 1 MSIT course which were expiring in this project period and needed to be rewritten to be reaccepted to the new standard. After many further delays in the USCG reviewing our course renewals, these 3 courses were finally renewed. Since these 3 courses are vital for carrying out the Drill and MSIT instructor trainings in this project, it was a vitally needed priority in this project period. Meanwhile other work has started on USCG accepted Navigation and Weather USCG accepted courses (100% of objectives achieved).

The number of fishermen trained in the 3 renewed courses will not be repeated here since those trainees are noted in the other objectives. However, the number of fishermen trained in Stability, Navigation and other short safety trainings is 54 workshops (540% of objective achieved) in these new courses for a total of 577 fishermen trained (577% of objective achieved).

Objective 6: At least 4 new schools had apprenticeship programs that included fishing safety (100% of objective achieved) for a total of 59 students from Brunswick, GA, San Diego, CA. and Kodiak, and Port Alexander AK. (148 % of objective achieved).

Objective 7: At least 28 Fisherman's First Aid classes to meet Coast Guard requirements with an ergonomics section (70% of objective achieved) to cover the causes and prevention of musculoskeletal disorders (MSDs) for 215 fishermen (54% of objective achieved) .

B.3. Competitive Revisions/Administrative Supplements

N/A

B.4. What opportunities for training and professional development did the project provide?

This project provided peer to peer co-instructing opportunities for 32 new instructors for mentoring as well as demonstration of new safety technology (life jackets, emergency signals) they can share with fishermen. Experienced instructors had the opportunity to co-teach and share effective teaching tips and knowledge updates to increase the quality of their training and confidence. This provided new instructors with an opportunity to teach due to additional support, as well as increase their confidence. This project resulted in: additional Marine Safety Instructor-Training (MSIT) courses for a total of 22 new instructors; 4 MSIT virtual refresher classes for 46 instructors to update experienced instructors on effective teaching methodologies, new marine safety equipment updates, new training protocols and new Coast Guard accepted curriculum. This project also provided support for instructors in the form of new safety training equipment and travel and instructor support to conduct training. In addition, in this project period, 209 fishermen were trained to conduct emergency drills for their or other vessel's fishing crews. An additional 577 fishermen were trained in stability, navigation and other fishing safety topics covered in the 2010 USCG Authorization Act.

Effort was spent on developing new relationships and promoting training to the fishing industry by new AMSEA instructors in this Southern region of the U.S. In addition, new quality training materials, training equipment, and online resources were provided for instructors and commercial fishermen and numerous new contacts formed with local fishing organizations, USCG examiners and other resources for fishermen and instructors. Peer to Peer training

was a very effective way to transfer knowledge and skills, build confidence and develop professionally as an instructor.

B.5. How did you disseminate the results to communities of interest?

This training used r2p to take commercial fishing research on the causes of injuries and fatalities from NIOSH and other epidemiologists, as well as casualty reports from USCG and National Transportation Safety Board (NTSB) reports and “lessons learned” into all aspects of the curriculum. We also this data from researchers to help us focus on training mitigation on the leading cause of fishing fatalities and ports, fisheries type and regions of the U.S. that are most at risk. We also used r2p derived materials on our website and educational publications produced and incorporated r2p into all educational materials. In addition, the content of this training was printed in numerous trade magazine and interviews took place for newspapers and radio as further described under “publications)

B.6 - What do you plan to do during the next reporting period to accomplish the goals?

This project number is completed. A competing continuation grant has been approved and will carry on some of the objectives in this project as well as additional related objectives.

C. PRODUCTS

C.1. Publications, conference papers, and presentations

Revision of training manual, *Beating the Odds: A Guide to Commercial Fishing Safety* has been completed. Scores of training slides on relevant fishing safety topics have been developed and distributed to instructors and used in classroom and online training in this project. 43 fishing vessel safety articles have been written in national and regional commercial fishing journals and magazines. Previous edition of *Beating the Odds: A Guide to Commercial Fishing Safety and Safety Instruction Manual* have been distributed to fishermen in training classes.

C.2. Website(s) or other Internet site(s) – include URL(s)

<https://www.amsea.org/>

C.3. Technologies or techniques

N/A

C.4. Inventions, patent applications, and/or licenses

N/A

C.5. Other products and resource sharing

Fishing safety educational publications, online marine safety programs and training videos are available on our website at www.amsea.org. In addition, these materials are distributed to our target group (commercial fishermen) through our national instructor network and used in training sessions. In addition, training slides are added and updated on an ongoing basis for use in our national network of instructors.

D. PARTICIPANTS

D.1. What individuals have worked on the project? Please include calendar, academic, and summer months.

Commons ID	S/K	Name	Degrees(s)	Role	Cal	Aca	Sum	Foreign	Country	SS
JDZUGAN		Jerry Dzugan	MS, BA	PD/PI	2.0					
LEANNFAY		Leann Fay/TC	PhD, MS, BA	Trainer/Researcher	1.7					
		Jeff Pearson		Office/Promotions/Tech Manager	1.6					
		Rob Emley		Training Coordinator	1.1					
		Ashley Green	MS, BA	Course Coordinator	1.7					
		Amanda Johnson		Accountant/Training Records	1.1					

D.2 Personnel updates

- a. Level of Effort:** Spread effort over 3 years instead of 2 years due to one year no cost extension
- b. New Senior/Key Personnel:** Leann Fay as of 12/1/2020.
- c. Changes in Other Support:** Previously reported
- d. New Other Significant Contributors:** 50% co-share from non-federal funds as required by grant.

E. IMPACT

E.1 - What is the impact on the development of human resources, if applicable?

22 new instructors were trained who will train fishermen in Coast Guard required training in the following underserved areas of the Gulf of Mexico and SE U.S. fishing ports This project also provided 4 MSIT refresher courses for 46 instructors, stability training for 12 fishermen, and peer to peer co-instructing for 24 new instructors. This will increase the knowledge and skills and both fishermen and instructions and lead to more confidence building in an emergency at sea and for instructors becoming more experienced, confident and effective in their teaching.

E.2 - What is the impact the Public Health Relevance and Impact? The investigator should address how the findings of the project relate beyond the immediate study to improved practices, prevention or intervention techniques, legislation, policy, or use of technology in public health.

An emailed survey of 346 randomly selected past participants of this training was send and questioned if the training had changed their safety practices. 45% of those who were from the GOM/S.E. of U.S. region responded that after the training they started practicing safety drills more frequently and with better quality. Another 45% responded that they had purchased additional safety equipment and one captain stated that “no one is allowed to go outside and use

the deck as a 'rest room' " (a cause of some overboard events). 90% of respondents from this region reported behavior changes they had made as a result of the training in terms of vessel and crew safety.

NIOSH data was used to compare the number of fatalities in the previous 5-year period to the most recent 5-year period. In the Gulf of Mexico region of NIOSH data, there were 37 commercial fishing fatalities between 2012 and 2016 including 19 fatalities from vessel disasters and 12 fatalities from falls overboard. In the most recent five-year data (2017-2021), there were 38 commercial fishing fatalities (2017 to 2021) including 10 fatalities from vessel disasters and 18 fatalities from falls overboard. This demonstrates not much change (37 vs 38) in overall fatalities, but with a decrease in fatalities from factors associated with the loss of a vessel (19 to 10), but an actual increase in falls overboard fatalities (from 12 to 18) in the latest 5 year period. This indicates that the safety training in the Drill Conductor course is having a possible positive effect of fishermen properly knowing how to use procedures and effectively use survival equipment during a vessel loss. It also informs us that more work needs to be done with the wearing of PFDs. This issue is being addressed by our recently awarded competing continuation grant incentivizing the purchase of wearable PFDs. This is more of a unique problem in this region due to the hot and humid conditions of the region which makes almost any PFD too warm and uncomfortable to wear while working.

Many factors exist which influence casualties on vessels. This project seeks to increase worker's knowledge and skills in terms of surviving a vessel casualty, overboard fatalities, preventing vessel capsizings and personal ergonomic injuries. In addition, over the several decades we have been training in this region, observationally we have seen a change in safety culture, evidenced by an acceptance of the need to do safety drills and knowing how to use safety equipment. This culture change has occurred more slowly than other coasts of the U.S., but the training in this project has become more accepted, and an increase in risk awareness has been more frequently noted on course evaluation forms.

This project contributes to the NORA Agriculture, Forestry and Fishing objectives that pertain to commercial fishing safety training as follows:

1. Reduce the risk of fatal and non-fatal injuries in the commercial fishing sub-sector. Rationale: Effective training in the use of survival equipment and procedures has been demonstrated to lower the rate and number of fatalities in commercial fishing.
2. Increase safety and health data meshing, information sharing, and collaboration among fishing safety researchers for workers in the fishing sub-sector. Rationale: Collaborate with researchers on both coasts to assist in program design and execution using expertise in fishing vessel safety.

F. CHANGES

F.1 – Changes in approach and reasons for change, including changes that have a significant impact on expenditures

The time span of this hands-on training project has almost exactly matched the length of the Covid pandemic. During this time period, scores of classes had to be canceled due to shut-downs and the reticence of people to attend training. The average number of fishermen attending a class that was held fell from a pre-pandemic level of 10 fishermen per class to as low as 3 per class during the pandemic. This meant that the cost per student trained from this grant to pay for class coordination, course promotion, instructor, travel costs etc. per student was 2 to 3 times greater than anticipated. Because fishermen are required to have the training in this project before they go to sea to provide wholesome, high quality food to the public during the closures during the pandemic, we made training objectives a priority.

F.2 - Actual or anticipated challenges or delays and actions or plans to resolve them

Since we made training an immediate priority, it took unanticipated time to create new training protocols to protect fishermen and instructors from Covid infection. Additional course coordination time was needed to schedule training sessions at a time there was an acceptable risk. To mitigate this challenge, we carefully monitored the level of risk in fishing ports and timed training on shorter notice before the Covid risk changed unacceptably. This, plus masking, distancing, cleaning and screening worked. We knew of no infections that were passed onto others in a training workshop we have held.

Covid also reduced the availability of instructors due to their own risk for infection and not wishing to follow our own or local guidelines regarding masking, vaccinations etc. and due to the aging of our instructors, some of whom choose to join the “great retirement surge” seen in the general population due to their own illnesses, family care needs and death. This was mitigated by the few available instructors who were willing to travel greater distances to reach fishermen’s ports.

In addition, the approval or reapproval of Coast Guard approved courses such as the ones in this project, were delayed at the Coast Guard for everyone teaching maritime courses in the U.S. and a great backlog of course approvals was experienced. This took extra effort on our part to navigate the logjam and as of this point in time all of our courses have been approved for the first time or reapproved.

F.3 - Significant changes to human subjects, vertebrate animals, biohazards, and/or select agents

N/A

G. Special Reporting Requirements**G.1 Special Notice of Award Terms and Funding Opportunities Announcement Reporting Requirements**

N/A

G.2 Responsible Conduct of Research

N/A

G.3 Mentor’s Research Report or Sponsor Comments

N/A

G.4 Human Subjects

G.4.a Does the project involve human subjects?

No

G.4.b Inclusion Enrollment Data

N/A G.4.c ClinicalTrials.gov N/A Does this project include one or more applicable clinical trials that must be registered in ClinicalTrials.gov under FDAAA? No
G.5 Human Subject Education Requirement Are there personnel on this project who are newly involved in the design or conduct of human subject's research? No
G.6 Human Embryonic Stem Cells (HESCS) Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)? No
G.7 Vertebrate Animals Does this project involve vertebrate animals? No
G.8 Project/Performance Sites Alaska Marine Safety Education Association DUNS Number: 7983753410000 2924 Halibut Point Rd. Sitka, AK 99835 Congressional District: AK-001
G.9 Foreign Component N/A
G.10 Estimated Unobligated Balance None

G.10.a Is it anticipated that an estimated unobligated balance (including prior year carryover) will be greater than 25% of the current year's total approved budget?

No

G.11 Program Income

Is program income anticipated during the next budget period?

This report marks the end of grant OH011921-01 therefore no other income is anticipated on this grant.

G.12 F&A Costs

Is there a change in performance sites that will affect F&A costs?

No

I. OUTCOMES

The outcome of this project includes 209 fishermen trained in conducting Emergency Procedures Drills, 209 fishermen trained in Fishing Vessel Stability Awareness, and 22 new marine safety instructors, and other fishermen trained navigation and other safety workshops totally 1,101 commercial fishermen trained in 136 workshops over the last 3 years along the coastline ranging from Texas to North Carolina. Additional outcomes include an increase in knowledge and skills related to use of survival equipment and procedures to take in an emergency. This has been demonstrated in skills check off training requirements and in pre and post tests.

Results of evaluating the project are as follows:

1. A process evaluation measured the number of individuals trained and courses held: 3 MSIT trainings for 22 new instructors, 22 Drill Conductor workshops for 209 new drill conductors, 36 stability workshops for 290 trained in stability, and 4 high school fishing safety classes for 59 students already engaged in commercial fishing. Including the attendance in ergonomic, navigation and other safety training, a total of 1,218 fishermen in classes over the 3 years of this project.

2. NIOSH data was used to compare the number of fatalities in the previous 5-year period to the most recent 5-year period – NIOSH data was used to compare the number of fatalities in the previous 5-year period to the most recent 5-year period. In the Gulf of Mexico region of NIOSH data, there were 37 commercial fishing fatalities between 2012 and 2016 including 19 fatalities from vessel disasters and 12 fatalities from falls overboard. In the most recent five-year data, there were 38 commercial fishing fatalities (2017 to 2021) including 10 fatalities from vessel disasters and 18 fatalities from falls overboard. This demonstrates not much change (37 vs 38) in overall fatalities, but with a decrease in fatalities from vessel related associated with the loss of a vessel (19 to 10), but an actual increase in falls overboard fatalities (from 12 to 18) in the latest 5 year period.

None of the small sample of emailed surveys that was returned from this region from trained fishermen noted that they had been in an emergency and used their training to survive. However during this 3 year project, 2 vessels sank in this region with a total of 4 people and all survived in part due by the rapid and effective reactions of the crewmember on the vessel that was trained in this program.

3. Written post course evaluations for Drill Conductor, MSIT and stability classes noted 100% of participants said they would recommend the course to others. 80% of respondents provided examples for how the course will change their safety practices on the water (i.e., 40% of respondents said they be more aware and mindful of risks), comments included “Will practice drills more often”, “Bought an abandon ship and flooding control kits”, “Updating and

increasing frequency of our emergency drills”, “No one is allowed now to use the “rest room” outside on deck”, “Updated my flooding control kit and now doing regular fire safety checks” etc.

When asked to rate the quality of the instructor, 96% of respondents rated their instructor as “excellent” and the remaining 4% rated their instructor as “good.”

4. All new instructors met all major criteria in the Instructor Evaluation Criteria Checklist used for new instructors. Knowledge gain from MSIT training completion was assessed using pre and post tests for all new MSIT trainees with pre test scores averaging 85% and post test scores averaging 92.8%. Knowledge gain from the stability workshops was assessed using pre and post tests with pre test scores averaging 50 % and post test scores averaging 91%.

5. Pre and post tests were used to measure the gain in knowledge in ergonomic best practices for fish workers. Ergonomic pre/post tests showed a gain of 63% pretest to 89% after training- a gain of 26% in knowledge.