

## **Developing a Hybrid Learning Curriculum for Supplemental At-Sea Monitoring Training**



Final report submitted to the Atlantic States Marine Fisheries Commission on 07/14/2023 by:

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## List of Acronyms

AIS	Accuracy, Integrity, Service (At-sea Monitor Provider)
AMSEA	Alaskan Marine Safety Education Association
ASM	At-Sea Monitor
ASMFC	Atlantic States Marine Fisheries Commission
CFF	Coonamessett Farm Foundation
EWTS	East West Technical Services (At-sea Monitor Provider)
FP	Fishing Partnership
LLC	Limited Liability Corporation
MSIT	Minimum Industry Safety Training
NEMM	New England Marine Monitoring (At-sea Monitor Provider)
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NEFOP	Northeast Fisheries Observer Program
RFP	Request for Proposals
SASH	Sexual Assault/ Sexual Harassment Training

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## **Contract Information**

**Contract Number:** 21-0806

**Grantee:** Coonamessett Farm Foundation, Inc.

**Principal Investigators:** Tasha O'Hara, Tanner Fernandes, Taylor Irwin, Emily Bruton, Kelly Alves, Justin Potter

**Award Period:** August 1, 2021 to June 30, 2023

**Project Title:** *Developing a Hybrid Learning Curriculum for Supplemental At-Sea Monitoring Training*

**Award Start Date:** August 1, 2021

## **Program Background**

The At-Sea Monitoring (ASM) program was established in 2010 as a result of Amendment 16 in order to increase the overall groundfish monitoring coverage to meet NOAA Fisheries goals of sustainable fisheries. The program is unique to the Greater Atlantic region and ASMs focus their data collection on estimating discards for vessels operating in the groundfish fishery. It is a vital tool for ensuring accurate and timely catch and bycatch data in the groundfish sector in the Northeast and Mid-Atlantic regions and is a key component for sustainable fisheries management in the Northeast Region. ASMs collect scientific, management, regulatory compliance, and economic data aboard commercial fishing boats in the Northeast region.

Groundfish refers to fish species that spend part or most of their life along the bottom of the seafloor. They often share the same habitat and are managed together as a stock complex. In the Northeast, the groundfish sector manages 13 fish that form 20 fish complex stocks in the region. Since its inception, target coverage rates have varied mainly between 20% and 40% of all trips. Amendment 23 initially set increased ASM coverage rates at 100% trip coverage starting in 2022. This was later decreased to 80% in December 2022, then increased to 90% coverage in 2023. Supplemental trainings were needed to provide additional monitors for deployment in order to meet these elevated goals.

## **Program Objectives**

The objectives of this CFF-led ASM Program were to:

1. Prepare new At-Sea Monitors (ASM) for appropriate at-sea data collection and reporting, following NOAA guidelines for sampling and reporting
2. Utilize and supplement existing ASM training program through use of a hybrid learning platform

CFF aimed to train approximately 140 groundfish monitors over the course of the training contract, as outlined in the initial Request for Proposals. To this end, CFF set out to exceed this goal and opened a total of 217 seats to potential trainees over the 12-class program.

Unfortunately, ASM Provider companies were only able to recruit enough trainees to utilize ~70% of these seats. However, CFF's exceptional number of open seats did help in achieving this objective, as CFF was still able to successfully train 134 students to enter the field, in line with the RFPs request of approximately 140 trainees. See [Attainment of Training Milestones](#).

## Program Goals

1. Develop an effective hybrid course for training ASM applicants
2. Train ASM applicants to identify target and bycatch species in Atlantic groundfish fisheries and to collect and report fisheries dependent data using NOAA/NMFS NEFOP guidelines
3. Prepare ASM applicants for at-sea data collection with conflict resolution tools through guided role-play in the classroom and during training in the field
4. Provide NOAA/NMFS NEFOP compliant offshore safety and survival training to ASM applicants

CFF-led ASM training remained in line with all NMFS standards and NMFS-created curriculum. Prior to training, all staff underwent NMFS-led dry-runs of program training materials and lectures, to ensure the two ASM programs and lessons would remain comparable. Throughout the program, CFF staff continued to participate in regular meetings with NMFS training staff. These meetings include primary ASM leadership staff from NMFS as well as CFF's ASM staff and focus on the sharing of information between NMFS and CFF, further logistics and planning, and questions/answers, when needed. Provider companies have been notified of important dates and deadlines and proper protocols for submitting paperwork and candidates to CFF for approval several months prior to deadlines. During the first year of the contract, CFF sub-contracted the offshore safety and survival training to McMillan Offshore Safety Training, based in Maine (**Figure 1**). During the second year, CFF sub-contracted the offshore safety and survival training to Fathoms Resources LLC.



*Figure 1: Safety training modules for the ASM program. ASMs practicing offshore survival safety tactics (A-B). Basic firefighting and flare skills are demonstrated and practiced by all trainees prior to passing the safety course (C). All trainees learn to hoist themselves and their partners into the safety raft (D).*

### Attainment of Training Milestones

In all, 155 seats were utilized during the 12 training classes held over the course of the contract. Overall, over 86% of the students who started the program successfully completed it and entered the field. Less than 6% of students left the program for personal reasons, which included: illness, pre-existing medical conditions, and family issues, among other reasons. 7.7% of students did not pass grading standards, and were exited from the program (**Figure 2**). This included one student who was unable to complete the swimming standards. Of the 21 total students who exited one of the 12 CFF-led training classes for any reason, six were brought back for future trainings and all six successfully completed the second training.

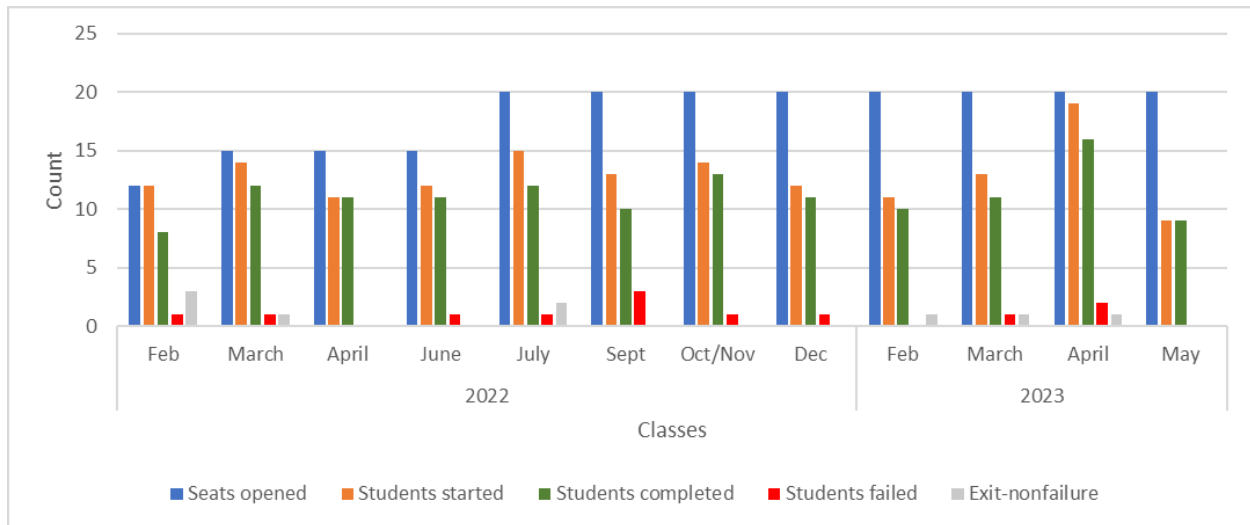


Figure 2: Bar chart of seat openings and student success for all CFF-led training classes in 2022 and 2023.

## Training Schedule and Potential Trainee Openings

Over the course of the initial 2-year contract, CFF held 12 ASM trainings and opened up enough potential seats to train up to 217 ASMs. While CFF decides how many seats can be open to provider companies, CFF does not recruit trainees or decide how the seats are filled. From the total number of open seats for a given class, NMFS decides in advance of each training session how many of those seats will be allotted to each provider company. Provider companies work to recruit students to fill the seats they are allotted each training. CFF-led ASM classes were held during the following dates:

### 2022

February 15th - March 3rd

March 21st - April 5th

April 19th - May 4th

May 31st - June 15th

July 18th – August 2nd

September 6th - September 21st

October 24th - November 8th

December 5th - December 20th

### 2023

February 6th - February 22nd

March 6th – March 21st

April 10th – April 25th

May 15th – 31st



## Student Progress and Success

NMFS Observer Program has strict standards and grading guidelines that are shared with all students and CFF staff. NMFS requires that all students receive a minimum grade of 84.5% overall for the program, as well as a minimum grade on several exams. CFF works closely with NMFS to ensure that all standards are met, and to discuss any issues or anomalies that may come up with grading.

Average student grades remained relatively similar between training classes in both years, with an average class official (final) grade range between 90.8% and 94.4% (**Table 1**). Overall, the lowest average grades are for homework and the Final Exam, which is a cumulative exam encompassing modules learned over the course of the program. From 2022 to 2023, there was a slight increase in grades the longer the CFF-led courses were up and running, though grades remained relatively high in all classes across all years.

In addition to grades for exams, quizzes, and assignments, ASMs are also graded on classroom performance. This includes their participation in class and group work as well as during vessel orientation and safety sessions. It also includes timeliness of work submission and tardiness. To ensure fairness in performance evaluation, all trainers rank students individually and the scores are discussed and averaged prior to the final exam. Results and considerations for ranking are privately shared in a sheet that is visible to NMFS staff for transparency. Any major concerns regarding student grades, performance, or abilities are discussed with provider companies at least once a week during trainings, though this may increase if there are major concerns or an emergency with a particular student, CFF also hosts several end-of-class meetings with each provider company to go over student progress individually and all providers are able to access their own student grades (providers are allowed access only to students hired by their company and are not privy to the student progress of other company employees) throughout the course so ensure there are no surprises.

Table 1: Table of average grades for each CFF-led ASM class in 2022 and 2023 under the initial 2-year contract.

		Homework	Incidental Take Exam	Fish Exam: Open Book	Fish Exam: Closed Book	Safety Exam	ASM Final Exam	Performance	Official Grade
2022	February	84.7	96.6	98.9	99.1	95.7	87.8	4.7	91.7
	March	93.6	94.7	92.3	95.7	94.6	94.2	4.9	94.3
	April	86.5	94.6	96.9	98.8	95.4	87.8	4.5	92.6
	June	89.1	94.4	94.6	91.9	92.0	90.1	4.3	92.7
	July	88.7	99.6	96.1	93.1	88.5	86.7	4.7	90.9
	September	88.0	96.1	97.6	94.1	90.3	88.1	4.5	90.8
	October	88.8	95.1	97.9	97.4	92.9	90.9	4.3	93.2
	December	90.5	100.3	96.3	96.0	94.4	91.0	4.6	93.5
	<b>Average 2022</b>	<b>88.7</b>	<b>96.4</b>	<b>96.3</b>	<b>95.8</b>	<b>93.0</b>	<b>89.6</b>	<b>4.6</b>	<b>92.5</b>
2023	February	90.6	98.2	98.8	97.9	95.4	88.1	4.8	93.8
	March	89.9	100.6	96.3	91.8	94.8	91.6	5.0	94.4
	April	87.0	96.5	95.7	98.8	95.6	90.4	4.7	92.9
	May	90.2	93.6	98.8	97.6	96.1	86.8	4.8	93.0
		<b>Average 2023</b>	<b>89.4</b>	<b>97.2</b>	<b>97.4</b>	<b>96.5</b>	<b>95.5</b>	<b>89.2</b>	<b>4.8</b>
	<b>Average total</b>	<b>89.0</b>	<b>96.7</b>	<b>96.7</b>	<b>96.0</b>	<b>93.8</b>	<b>89.5</b>	<b>4.7</b>	<b>92.8</b>

Since the start of CFF-led ASM classes in February 2022, CFF has received several rounds of feedback from NMFS staff, all overwhelmingly positive regarding training competence, communication, and professionalism of CFF staff. CFF staff worked closely with NMFS staff and all provider companies to continue to improve training to better serve students and increase our ability to successfully train the next generation of ASMs, and we look forward to extending our contract with ASMFC to complete future trainings in cooperation with the Observer Program.

CFF opens up several days every training to welcome in provider company representatives to foster not only the connection and necessary face-time between new observers and their providers, but also to ensure that provider companies are knowledgeable of and connected with the training process. The entire CFF-led ASM staff has a wealth of experience as ASMs, observers, and /or fisheries vessel sampling, and staff understand how important it is for new ASMs to feel supported and connected before and during training and deployments.

Overall, students entering the CFF-led program have been overwhelmingly successful. Over 86% of all students entering the classroom have successfully completed the program, while a small number have left for personal, medical, and academic reasons. Several CFF-trained ASMs have been awarded the coveted “Observer of the Month” distinction for exceptional data quality and service. Three CFF-trained ASMs were awarded this distinction in July, October, and November of 2022. Additionally, CFF-trained ASMs were awarded this distinction in March and April 2022, with one CFF-trained ASM voted runner-up in February 2023.

## **Staff Professional Development and Facility Upgrades**

In the months leading up to the start of the CFF-led trainings, Tanner Fernandes, Taylor Irwin, and Tasha O'Hara audited NMFS-led observer training classes to better understand the flow of class and the behind-the-scenes work involved in training. The same staff also conducted dry runs of training modules for NMFS staff to provide feedback prior to the start of CFF-led classes. Kelly Alves also audited classes and participated in dry runs in January 2023 shortly after her hire at CFF. Emily Bruton, having previously been a key member of the NOAA observer training team previously, was exempt from auditing ASM classes and dr

CFF training staff undertook additional training to ensure ongoing and improved standards for all offshore safety modules. In Fall of 2022, CFF training staff undertook various safety training courses to further aid in ASM safety training. Emily, Taylor, and Tanner successfully completed an initial Marine Safety Instructor Training (MSIT) course certified through the Alaska Marine Safety Education Association (AMSEA). MSIT is AMSEA's Coast Guard-accepted, 6-day train-the-trainer course which includes in-water, hand-on safety modules as well as in-class learning and exams. Emily Bruton completed this first course in Sitka, Alaska and additionally completed her first train-the-trainer course as an assistant instructor at a CFF-hosted AMSEA course held in East Falmouth, MA in Fall 2022. At this CFF-hosted course, CFF additionally hosted fisheries research groups from Massachusetts and Rhode Island to take part in the course.

Additionally, Emily Bruton and Tanner Fernandes will soon participate in an upcoming SASH (Sexual Assault/ Sexual Harassment) training and meeting hosted by NMFS in order to better train ASMs with the most up-to-date information and modules. Taylor Irwin completed Red Cross lifeguard training and currently acts as the onsite lifeguard for all in-water ASM safety training modules. Kelly Alves will also be receiving her certificate for lifeguard training shortly. Kelly also received an additional safety certification from Fishing Partnership (FP) in Safety and Survival Training and became a certified Drill Instructor. FP is a New Bedford, MA-based non-profit organization focused on the wellness, safety, and the economic security of local fishermen and fishing communities in the New England area. The organization mainly provides services to fishery industry professionals, and Kelly's additional training is in line with the training that most local New England fishermen will have on the boats observers are deployed on. This has allowed her to better assist in safety trainings and provide additional feedback to observers regarding emergencies at sea.

Since the commencement of classes in early 2022, CFF has worked to upgrade facilities and electronic capabilities to support hybrid training components and improve classroom engagement and learning. CFF has undertaken many upgrades to the building, training aids, and land to improve connectivity, training quality, storage, and trainee quality of life while at CFF-hosted trainings.



*Figure 3: ASM classroom at the CFF facility in East Falmouth, MA.*

CFF constructed a new storage facility and cabinetry to house much of the ASM training equipment, safety gear, and training aids that CFF has invested in to ensure the continued quality of trainings. CFF has also purchased additional safety equipment and training aids to increase understanding and ensure the best possible learning outcomes. Trainee areas within the building have been upgraded with new equipment for comfort and accessibility. Prior to the start of trainings, CFF began to build patio areas for students and to update outdoor areas for lunch with new picnic tables. New tents and tables have since been purchased for outdoor modules such as fish labs so that students have the opportunity to be outdoors in nicer weather. CFF also updated an indoor break room that is used exclusively during lunch hours for ASM trainees, and can also be utilized by visiting provider company representatives when visiting their students.

## **Changes or Updates to the Program and Staffing**

- Taylor Irwin and Tanner Fernandez joined CFF as the primary training staff in October and November of 2021, just months after CFF received the contract.
- S. Quinn McWatters was replaced by Justin Potter as the CFF Project Coordinator in February of 2022.
- In May of 2022, Emily Bruton joined the CFF training team. Emily was a previous observer who was heavily involved in safety training at NMFS's Observer Program.
- In Fall of 2022, Taylor, Tanner, and Emily took on additional tasks to co-manage the program during its final classes.
- Kelly Alves was hired to assist in training in December of 2022 to fill in for Emily Bruton during her maternity leave.
- In February 2023, NEMM was added to the list of approved ASM-provider companies for the program. The three previously approved companies (AIS, Inc., EWTS, and Fathoms Resources, LLC.) remained.

## **Future work and Goals**

Since February 2023, CFF has been working with NMFS and ASMFC to extend the current contract to continue CFF-led ASM trainings for an additional year, to end at the end of June 2024. To ensure ongoing recruiting and trainings in the interim while contracts are being finalized, CFF has agreed to hold trainings in August, October, and December of 2023. In 2024, CFF anticipated hosting an additional 3-5 trainings, depending on the needs of the program.

In early 2023, CFF began work to develop a new and improved training facility and conference center within our current neighborhood association grounds. We anticipate that this training center will be utilized for future training sessions as CFF-led training programs and courses grow. Our main focus continues to be improving the training experience for students to ensure they remain engaged and prepared for the job ahead.