

YOUNG FISHERMEN'S TRAINING FRAMEWORK: A FUTURE FOR CAPE COD MARITIME TRADITIONS

PROJECT SUMMARY REPORT



Photo by David Hills/fishypictures.com

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CAPE COD COMMERCIAL
**FISHERMEN'S
ALLIANCE**



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EXECUTIVE SUMMARY

While fishing is an adventurous and very viable career, “graying of the fleet” has become a familiar phrase in New England’s commercial fishery, as well as around the country. Used to express the lack of new entrants and simultaneous exit/retirement of current fishermen, this issue must be addressed in order to preserve the cultural heritage of fishing communities and maintain domestic seafood production. Fishermen face many challenges from rising costs of entry and high financial risk to climate change and complex regulations. Many challenges, especially relating to fluctuating markets and workforce recruitment, have been further exacerbated by the COVID-19 pandemic.

While Massachusetts has some of the highest volume landings and highest valued landings in the country, there continue to be vacant jobs in commercial fishing, shoreside fishing industry businesses (fish processors, etc.), and aquaculture. According to *Port by Port: Profiles and Analysis of the Massachusetts Commercial Fishery*, Massachusetts ports have an ex-vessel value of \$647 million, support over 5,700 employees in fisheries, processing, aquaculture, and hatcheries, and contribute to over \$321 million in wages. Cape Cod alone makes up over \$74 million in ex-vessel value excluding confidential data (MA DMF, et. al. 2021). Despite being such a lucrative industry and one that is deeply woven into the culture of Cape Cod, captains continue struggling to recruit the next generation of commercial fishermen.

In 2021, Congress and the President recognized the importance of this issue with the passage of the Young Fishermen’s Development Act (YFDA). In anticipation of future funding from the YFDA, the National Sea Grant College Program supported grants to develop regional planning frameworks for conducting “Food from the Sea” Career Development programs, to allow Sea Grant Programs, industries and communities to plan for anticipated opportunities associated with the YFDA and other initiatives that may provide training, education, outreach, and technical assistance to the U.S. seafood sector. This scoping effort is intended to identify mechanisms and strategies to enhance job opportunities for the next generation of commercial fishers, aquaculturists, and others who are vital to supplying high quality seafood to American consumers. The planning frameworks developed through this scoping effort will characterize what is needed at local, regional, and national levels to initiate programs, workshops, and services to enable fishermen, aquaculturists, and seafood sector professionals to enter career paths and make a living supplying seafood from our oceans, coasts, and Great Lakes.

This project, “Young Fishermen’s Training Framework: A Future for Cape Cod Maritime Traditions”, was funded by *Sea Grant Special Projects Competition “Food from the Sea” Careers Program: Young Fishermen’s Development Act & Aquaculture Planning Frameworks* to identify regional needs and develop a training plan for the Massachusetts fishing industry, with a focus on Cape Cod fishing communities. This report includes a plan to recruit, train, and retain young fishermen in the fishing industry, including creating a clear point of entry for potential crew to connect with captains.

This report and training framework was developed over 12 months by the Cape Cod Commercial Fishermen’s Alliance and MIT Sea Grant.

The MIT Sea Grant College Program envisions addressing ocean-related challenges of high importance to the State and the Nation with advanced technical contributions and strong commitment to scientific research dedicated to sustaining the coastal resources and communities of our Commonwealth. Our mission is to conduct and support research and develop technology of high impact, to enable scientific investigation, education, and outreach efforts that address significant problems surrounding ecosystem health and the human use of the Massachusetts coastal and marine environment. Our education and outreach efforts disseminate the results of work conducted by MIT Sea Grant-funded researchers, Advisory Services Group, and independent labs in collaboration with our academic, industry, tribal, municipal, community, state, and federal partners. We encourage stewardship and lifelong learning, implement sustainable and useful technologies, and help answer management questions in support of public policy and industry based on relevant, evidence-based, and scientifically sound information, stakeholder engagement, education, and outreach programs. Efforts in research, education, and outreach address critical marine and coastal issues identified by Massachusetts constituents that are within the four focus areas of the National Sea Grant College Program. The goals and outcomes of these focus areas shape priorities for our biennial solicitation to fund new proposals and guide us in developing short- and long-term projects that best serve our constituents.

The National Sea Grant College Program (NSGCP) core values incorporate Vision, Collaboration, Sustainability, and Accountability, as well as Diversity, Equity, Inclusion, Justice, and Accessibility (DEIJA). These values support a culture of integrity and scientific neutrality, enabling Sea Grant to serve as a trusted neutral broker of information. For over 45 years, MIT Sea Grant has brought the expertise of MIT to bear on understanding and addressing issues facing our ocean and coastal ecosystems, resource management, industry, and coastal communities. Our rigorous research, education, and outreach programs support the wise use and conservation of marine resources along the Massachusetts coastline, support our communities and economies, and help create coastal stewards of tomorrow.

Cape Cod Commercial Fishermen’s Alliance is a member-based, nonprofit organization that works to build lasting solutions to protect our ecosystem and the future of our fisheries. Fishermen’s Alliance represents over 150 fishing businesses and more than 300 fishing families, making our organization the leading voice for commercial fishermen on Cape Cod for over thirty years. In 2016, staff and fishermen began working with Congressional representatives to develop the Young Fishermen’s Development Act (YFDA), and continued to advocate for the bill through its passage in 2021. With funding from the Commonwealth of Massachusetts and National Fish and Wildlife Foundation from 2020-2021, the Fishermen’s Alliance has conducted a pilot training program for new/beginning fishermen on Cape Cod.

With this strong foundation, Fishermen’s Alliance, in partnership with MIT Sea Grant, set out to develop a more comprehensive curriculum framework to recruit, train, and retain young fishermen in New England’s commercial fishing industry. The curriculum includes the following:

1. Place-based curriculum, focused on the Cape Cod region

2. Definition of industry entry points and process to connect captains with competent aspiring fishermen
3. Incorporation of existing fishermen and local fishing industry service businesses, local knowledge and established training resources
4. Strategic mechanisms to retain and advance diverse young fishermen into the commercial fishing industry with the long-term goal of economic growth for fishing communities

SCOPING PROCESS & FRAMEWORK DEVELOPMENT

The scoping process was designed to address current training programs, gaps or missing content in current training programs, outreach strategies, and retention strategies. A wide range of stakeholders were included in the scoping process, including commercial fishermen (including charter, wild shellfish, and aquaculture), fisheries organizations, training program staff (regional and national), shoreside support/other industry businesses, teachers, previous trainees, marine scientists, local and state officials, Senator Markey's Office, the New England Fishery Management Council, and other community members. The largest stakeholder group was commercial fishermen, which included representation from federal and state fisheries, charter, wild shellfish, and aquaculture. Fishermen also ranged in fishing gear types, level of experience, and demographic.

The scoping process included five phases:

1. Compiling lessons from Fishermen's Alliance pilot training program
2. Stakeholder outreach, planning meetings, and individual interviews
3. Publicizing the draft planning framework
4. Public feedback meetings
5. Survey

The Fishermen's Alliance *Fishermen Training Program* pilot included two separate trainings and several workshops with local marine services vocational high school students. The first course in March 2020 was a 5.5 day course that included introduction to local fisheries, basic skills, marine safety and First Aid/CPR certifications, USCG Auxiliary boating safety course, fishing boat tours, and introductions to local captains. Four people successfully completed the entire course, and one person partially completed (did not complete practical safety skills for health reasons). Although the boating safety course has some useful components, it was removed from the curriculum because participants and trainers agreed that it encompasses material too broad for a fisheries specific training course. The USCG Auxiliary remains a resourceful training partner, and may be included in other elements of a training program. COVID-19 restrictions on in-person gatherings resulted in adapting the curriculum. The in-water portion of safety training transitioned from an indoor pool to outdoors at a local harbor, which is preferable for both fishermen and staff. Additionally, online training content was created to minimize indoor classroom hours while still utilizing outdoor hands-on learning opportunities.



On the F/V Sea Holly, Captain Sean Leach shows trainees how to measure with a gauge if a lobster is a “keeper” (of legal size). Photo by Salty Broad Studios



Captain Jesse Rose explains to trainees aboard F/V Midnight Our how a scallop dredge is used to harvest sea scallops offshore. Photo by Salty Broad Studios

A condensed two-day version of the *Fishermen Training Program* was held in November 2021. Ten participants completed this training, which included introduction to local fisheries, marine safety training (with in-water practical skills at local harbor), and introductions to local captains. Although safety training certification may be completed in a single day as in this condensed course, it creates a long and taxing schedule for that day. It is recommended that safety training be instructed over two days in order to comfortably cover classroom instruction, practical skills (fire extinguishing, in-water drills, etc.), and First Aid/CPR. Certified safety trainers led the marine safety and First Aid/CPR portions of the courses. Fishermen instructors and staff instructed the introduction to fisheries, expectations, and basic skills. Incorporating fishermen as trainers facilitates connection between captains and potential crew, and naturally offers insight for new fishermen. From October to December 2021, Fishermen’s Alliance also partnered with a local vocational

technical high school marine services department to conduct workshops as part of the *Fishermen Training Program*. Thirty students total participated in three workshops that were led by experienced commercial fishermen, with guidance from Fishermen’s Alliance staff. Topics included overview of local fisheries (gear types, target species, etc.), job expectations, knot tying, hydraulic fittings, scientific research opportunities, donning survival suits, and job opportunities (part-time, full-time, year-round and seasonal). Workshops took place at the school’s marine services workshop and at local harbors on different types of fishing boats at the dock.



Trainees demonstrate practical skills in survival suits in Stage Harbor, Chatham during the November 2021 Fishermen Training Program’s marine safety training. *Photos by Cape Cod Commercial Fishermen’s Alliance*

Staff conducted over eight stakeholder planning meetings with previous training partners, fishermen, training program alumni, fisheries organizations, and shoreside industry business owners to collect direct feedback on recruitment, training program content and priorities, curriculum design, and retention. Meetings were a combination of in-person and virtual, and there were individual follow-up interviews with many of the stakeholders participating in the scoping process. A draft planning framework was established based on current training program research (regionally and nationally), stakeholder planning meetings, and follow-up interviews.

Feedback on the draft framework was solicited through email listserv of MIT Sea Grant and Fishermen’s Alliance, social media, and traditional press/media. Email communications reached over 450 recipients, with additional views to news postings on the MIT Sea Grant website (57 unique visitors), and social media posts. This scoping project was also featured in the Fishermen’s Alliance e-mag, which reaches over 4,000 subscribers. The draft framework was accessible to download and review. Stakeholders could provide feedback directly to staff or provide feedback at one of the two public virtual meetings hosted by MIT

Sea Grant. Eleven stakeholders attended the online meetings to ask questions and provide comments, but most of the feedback was received directly via email.

MIT Sea Grant and Fishermen's Alliance received feedback from fishing organizations, individual fishermen, training program staff, Senator Markey's Office, fisheries managers, shoreside business owners, marine scientists, and training program alumni. The largest group of responding stakeholders was commercial fishermen. A final survey based on the framework and feedback was sent to local Cape Cod fishermen to verify curriculum details, rank priorities, and offer any additional feedback. Fishermen were offered a monetary incentive (\$50) for fully and thoughtfully completing this survey, and 36 responses were received. All feedback was documented and incorporated into the framework and/or report.

Throughout the scoping process, information was disseminated through newspaper articles, social media, newsletters, and website postings by Fishermen's Alliance and MIT Sea Grant. See Appendix A for full list of related articles.

FISHERMEN TRAINING CURRICULUM

OVERALL RECOMMENDATIONS

Goals

- Recruit – conduct outreach to connect with individuals interested in working in the commercial fishing industry
- Train – provide basic level of training for new/beginning fishermen, and more advanced levels of training for owner/operators
- Retain – assist in job placement, provide fishermen with local resources, and continue to communicate/support alumni of fishermen training programs

Course Scheduling

- Cape Cod Fishing 101:
 - Course length may vary by port or region, so the curriculum framework notes topics by level of priority.
 - In general, for the Cape Cod region, a four-day course could include only high priority topics, whereas a two-week course would be sufficient to include all topics and conduct boat visits and/or trips. Portions of this course that do not require practical skills may take place in-person or virtually.
 - Four day course = 32 hours; two week course = 80 hours (anticipated 8 course hours per day). These could be offered as full day commitments (8 hours per day) or broken into two hour evening modules, stretched over a longer timeline.
- Owning and Operating a Fishing Business: Course should be offered in short classes by individual section in order to be most manageable and accessible for fishermen. Course sections do not have to be sequential; they depend on fishermen’s level of experience and their business needs. The sections in this course could be conducted virtually or in-person.
- Time of year for course offerings may be variable by specific region/fishery due to seasonality of certain fisheries. Overall preference in the Cape Cod region is for an early spring course as this aligns prior to the start of many seasonal fisheries and increase in activity for several year-round fisheries.

Incentives

- Course should be free for participants
- Course completion may also include a stipend for training days and/or gift card to local fishing supply store to purchase gear necessary to get a job
- Assistance with job placement
- Continued support from training organization(s)

RECRUITING NEW ENTRANTS

- Recruitment outreach should be broad and plentiful to attract diverse participants
 - Multiple modes of communication – printed flyers, news media, ads, online, in-person, etc.

- Outreach materials should be available in multiple languages based on local area demographic
- Potential recruitment mechanisms include:
 - High schools, including vocational technical high schools. Guidance counselors and marine services instructors are best contacts
 - Harbormaster offices
 - Colleges/universities
 - State, local, and private job boards
 - Department of Transitional Assistance
 - Chambers of Commerce
 - Blue Economy initiatives
 - Veteran community groups
 - Indigenous community groups
 - Community spaces (ferry terminals, gyms, coffee shops, etc.)
 - Boating/sailing clubs
 - Bait and tackle/outdoor sporting shops
 - Young professionals organizations
 - Fishing organizations
 - Fishing industry participants
 - Local news media announcements (newspaper, online, radio)
 - Regional or national fisheries media (National Fisherman, etc.)
 - Social media advertisements
 - Fisheries classified ads
- Outreach materials should include:
 - Course information
 - High level job expectations (variable schedule, time at sea, inclement weather, etc.)
 - This may be highlighted in a positive way by expressing the element of adventure this career path provides

TRAINING COURSE ONE: FISHING 101 (FOR NEW/BEGINNING FISHERMEN)

Course structure is variable depending on desired course length, so the highest priorities are noted in parentheses next to the respective topics. It is essential that experienced fishermen are involved with the instruction of this course. It is preferable that fishermen trainers represent diverse gear types, fisheries, backgrounds (education, generational/non-generational fishermen), etc.

- Introduction to local fisheries (high priority)
- Maritime safety training (high priority)
- Job expectations (high priority)
- Employment connections (high priority)
- Basic skills
- Intro to fisheries management
- Opportunities for growth/advancement and related work

Introduction to Local Fisheries (HIGH PRIORITY)

Many people are only familiar with a small portion of local fisheries, but training should reflect the diversity of local and regional fleets; it is important to establish a baseline knowledge of all available local fisheries in which participants could work

- Terminology
 - Examples: fixed vs. mobile gear, steaming (transiting to/from fishing grounds), soak time, surface system, high flyer, etc.
- Gear types: pot/trap, trawl, scallop dredge, gillnet, bottom longline (aka tub trawl or hook-and-line), hydraulic dredging, rod and reel, hand reel, harpoon, aquaculture gear (cages, trays, etc.), wild harvest shellfish gear (rakes, baskets, etc.), charter fishing
- Each gear type can be broken down by target fishery, season, and distance from shore/trip length
 - Example: Gillnets are a type of fixed gear that are fished anchored to the bottom in our region. Nets are made of monofilament and have a weighted leadline on the bottom and a polypropylene float line on top that help keep the net upright in the water column. About 10-20 nets (each 300ft) are strung together to form a “set” or a “string” of nets. Soak time (how long nets are in the water varies depending on what kind of fish are being targeted, ranging from less than a few hours up to a multiple days. Gillnetting occurs year-round out of Cape Cod, with fishermen targeting mostly skates, dogfish and some groundfish in the summer on trips lasting less than 24 hours, and targeting skates and monkfish in the winter on trips that average about 36 hours.
- Other topics to define within each fishery:
 - Deckhand and captain responsibilities in each fishery
 - Example: on a lobster boat with two crew, the captain would haul the traps up to the rail, the deckhand on the rail would be responsible for helping empty the trap and rebaiting the trap, the other deckhand would be responsible for banding lobsters and filling bait bags
 - Number of crew
- At least a portion of this section should be instructed by local fishermen; participants in pilot training unanimously reviewed firsthand experience from local captains as extremely valuable.

Maritime Safety Training (HIGH PRIORITY)

- U.S. Coast Guard approved/Standards of Training, Certification, and Watchkeeping (STCW), Alaska Marine Safety Education Association (AMSEA), or other comparable instruction of at-sea safety and survival instructed by certified safety trainer – it is recommended that the trainer be familiar with the fishing industry and its specific risks
 - Classroom theory and practical instruction/assessments to acquire basic skills for common at-sea emergencies, proper operation of onboard life-saving equipment, and station bill procedures
 - Including, but not limited to, donning a survival suit and executing in-water skills with the survival suit and life raft, flares, Emergency

- Position-Indicating Radio Beacon (EPRIB), ditch kit, life raft, life jackets, fire extinguishers/firefighting
 - Personal Safety and Social Responsibilities: includes competency and training in workplace communication, workplace safety, and personal care (including fatigue, seasickness and stress)
 - First Aid/CPR: classroom theory and practical skills in elementary first aid and CPR, with a focus on potential maritime scenarios
- Other safety topics – could be instructed by certified trainers, captains or fisheries experts
 - Standing watch
 - How to use a radio
 - Basic review of electronics
 - Example: should know how to identify objects on the radar, especially other vessels
 - How to adjust course using autopilot or hand steering
 - Checking gauges – most boats have gauges marked for what is “normal,” but should discuss with captain typical voltage, engine temperature, etc.
 - Running lights on your own vessel, as well as how to interpret the lights you are able to see on another vessel in order to determine its orientation and course direction
 - Common vessel identification lights, sounds, etc.
 - Know how to start and turn off the boat (even as a deckhand)
 - Deck safety
 - Where to stand/where not to stand on various types of fishing boats
 - Example: do not stand in front of winches under operation
 - Example: always watch your feet with line on deck
 - Keep deck clean
 - Example: hose deck after setting back gear in order to wash off slipping hazards (seaweed, monkfish eggs, etc.)
 - Fishing gear safety – captains typically teach “you are more important than the gear”
 - Example: if on lobster boat with open stern and multiple traps go out at once, do not try to stop them
 - Mooring/docking procedures
 - Example: where to tie lines
 - Example: awareness of gap between vessel and dock
 - Fish handling equipment safety – knives, hooks, fish picks
 - Example: how to properly pass a knife – never pass blade facing other person, safer to put down on surface and let other person pick up safely by handle
- For shellfishing/aquaculture:
 - Waders can fill with water over the top or via a hole elsewhere in the material – fishermen should know how to respond accordingly, especially during times of year with cold water temperature

- Shellfish disease, human health concerns (*Vibro*, red tide)
- For charter fishing
 - Working with members of the general public that may not be familiar with fishing vessels or gear

Job Expectations (HIGH PRIORITY)

Setting realistic expectations for working at sea and/or shellfishing is of high importance for job retention and safety. Exposure to realistic experiences at sea will depend on available course time and funding. A training program should allow for participants to embark on a fishing trip. This typically requires insurance coverage that is above the traditional insurance policy that covers the regular captain and crew. Funding should be available to assist with these insurance costs. At minimum, a training trip may not need to be a full fishing day, but enough time to experience operation of the fishing gear (i.e. setting and hauling).

- Lifestyle
 - Schedules differ between fisheries, but are generally variable and often unpredictable due to weather
 - Seasonality – if working in a seasonal fishery, there are options to take winters off, fill in fishing in other fisheries, or other seasonal work (see resource list for more details)
 - Often harsh working conditions out in the elements in all types of weather and temperatures, working odd hours/long hours, difficult physical labor, lifting >50lb, smells from catch or bait, etc.
- Preparing for a trip offshore or shellfishing
 - What to wear and where to purchase the appropriate gear
 - Be early
 - Potential seasickness and/or fatigue
 - What else to bring
 - Know estimated trip length
 - Bring food and water
 - Some boats provide gloves, some do not, but recommend bringing your own pair for at least the first trip to ensure having proper size
 - Many smaller vessels are not equipped with marine heads; captains will explain human waste disposal protocol for individual vessels
- Fishing boat visit and/or trip
 - Navigational instruments/electronics in wheelhouse (compass, radar, autopilot, sounder, chart display, automatic identification system (AIS), rudder angle indicator, watch alarm)
 - Review watch standing responsibilities
 - Review basic navigational lights
 - Review gear terminology
 - Review location and use of safety/survival equipment
 - Gear demonstration – may demonstrate setting/hauling gear
- Shellfish aquaculture and/or wild harvest visit
 - Gear demonstration
- Finances
 - How fishermen are paid – “day pay,” share, etc.

- Include basic rates to charge for charter fishing businesses
- 1099 self-employed tax status – plan to set aside portion of paycheck for taxes
- Planning ahead if fishing seasonally

Employment Connections (HIGH PRIORITY)

Connecting program participants with available jobs is key to success of any program regardless of length

- Connections can be made on a level of individual matching of participants with jobs, through sending list of available trained deckhands to local captains, or via networking events with captains

Basic Skills

These skills are important, but in some cases may be learned on the job instead of through training course. Many captains prefer training their crew in the vessel's preferred specifications for various skills.

- Marlinspike seamanship – knot tying, splicing, line handling
 - How to tie knots: bowline, square, becket/sheet bend, clove hitch, and other applicable knots
 - Application of these knots
 - Example: becket or sheet bend may be used to connect lines, including lines of different diameters
 - Example: bowline creates a fixed size eye and can still be undone after being under tension; this could be used to tie around a piling when docking boat or could be used to respond quickly to man overboard (MOB) situation – throw eye to MOB before able to get proper safety equipment deployed
 - Short splice and eye splice
 - Tying line to cleat or bollard, or around a piling
 - Coiling and storing line
- Fish identification – common species targeted in the northeast
- Fish/shellfish handling
 - Terminology/common tools: shellfish gauges, different types of knives for gutting fish, shucking knives, banding tool, hook, fish pick, shellfish rake, etc.
 - Gutting fish, washing, and icing
 - Shucking scallops
 - Gauging and banding lobsters
 - Gauging shellfish
 - Keeping product cold while transporting
- Shellfish farming*
 - Shellfish biology and hatchery production
 - Grow-out practices, including predator mitigation and potential diseases
 - Safe handling
 - Harvest practices
- Net mending

**Fundamentals of Shellfish Farming is an existing course by Cape Cod Cooperative Extension and Woods Hole Sea Grant that offers a strong curriculum specific to shellfish farming*

Introduction to Fisheries Management

- Fisheries managed on local, state, regional/national levels
 - Examples: town shellfish permit, state waters black sea bass pot permit, federal permit for groundfish (managed by regional Council)
- Cooperative research and science-based management, and effective examples
- Sustainable fishing practices
- Opportunities for fishermen to engage in fisheries management (reference alternate courses available)

Opportunities for Growth/Advancement and Related Work

- Continuing education opportunities
 - Advanced fishermen training course: Owning and Operating a Fishing Business
 - USCG captain's license courses – Operator of Uninspected Passenger Vessels (OUPV), or 25/50/100ton
 - Additional safety training (i.e. drill conductor certification)
 - Off-season opportunities for seasonal fisheries
 - Kelp aquaculture
 - Fill-in trips in other fisheries
 - Off-season gear work in same or other fisheries
 - Seasonal work in industry shoreside support role
 - Transition from deckhand to captain (running a boat for someone else)
 - Transition from working for someone else to owning your own business
 - Transition to industry support role
 - Wholesale or retail fish distribution
 - Trades work
-

TRAINING COURSE TWO: FISHING BUSINESS WORKSHOPS

This course is geared toward existing fishermen and/or fishing business owners. The majority of the course, aside from practical skills, may be conducted in a classroom setting. It is recommended that this course be offered as a series of workshops focused on individual sections or subsections. This will ensure the training is relevant, manageable, and accessible for fishermen and their evolving schedules on the water. Course sections do not have to be sequential depending on fishermen's level of experience and their business needs.

A newly established training, Deckhand to Captain Training Program, through New England Young Fishermen's Alliance has a strong curriculum model that includes the majority of the below topics.

Business Planning

Taught by the respective experts in the respective fields (i.e. accounting, business planning, marketing/relationships)

- Business structure and planning
 - Understanding types of business options (LLC, DBA, INC, etc), including benefits and disadvantages of each
 - How to make an LLC, INC, etc.
 - Financing
 - Business goals and fishing plan
 - Year round budgeting on a variable/seasonal income
 - Calculating "share" pay for employees
 - Employee retention strategies (pay, treatment, etc.)
 - Insurance
- Taxes, 1099 employees
- Marketing catch
 - Relationships with fish buyers and other markets
 - Direct to consumer (dockside or other)
- Shoreside support
 - Types of shoreside support (mechanic, welder, bait, fuel, fish buyer, etc.)
 - Relationships with shoreside support
- For-hire vessel business operation
 - This is specific to charter fishing businesses which are unique in their interaction with members of the public

Permits, Vessels and Quota

Taught by fisheries experts, may also include presentations from USCG, brokers, or other experts from the relevant fields

- Wild Harvest permit types: state vs. federal
- Aquaculture grants and permitting
- Buying, transferring, and selling permits and boats
 - Registering a commercial boat
 - Permit paperwork
 - Timeline expectations
 - Key contacts
 - USCG safety inspection/requirements
- Quota/catch share systems
 - Overview of catch share systems for groundfish and sea scallops in the Northeast
 - Where/how to lease quota, tracking quota balances
 - Liability
- Reporting requirements

Technical Vessel Skills

Preferably taught by certified technician, with assistance from experienced fishermen

- General vessel and engine maintenance
- Basic diesel mechanics
- Basic welding
- Basic electrical

Fisheries Management & Science*

Taught by fisheries management and fisheries science experts with support from fishermen who participate in management meetings and cooperative research

- Overview of management and jurisdiction at local, state, regional, and federal levels
- Science-based management
- How to engage effectively in the fisheries management process
- Cooperative research opportunities
- Sustainable fishing practices

*The Marine Resource Education Program (MREP) is a well-established successful model for fisheries management and science training geared toward industry members - <https://mrep.gmri.org/>

RETAINING

After training, it is important for fishermen to have additional resources for support as individuals and for their businesses. From job placement as a new fisherman to navigating entrepreneurship to knowing where to get health insurance as a self-employed fisherman, it is important that all of these resources are accessible, and that there are qualified staff available to guide fishermen through these processes and answer questions.

Job Placement

- Successful job placement is key to long-term success of a training program, and this provides a clear entry point into the industry
 - Need clear and consistent point of contact for training course alumni seeking jobs and for captains with open positions (phone number and email should be static and re-assigned when there are staffing changes)
 - Optional: meet and greet event at close of training for participants to meet and mingle with captains that are hiring
 - Optional: members-only or public listing of available jobs/individuals looking for work in the industry

Continued Communication and Support

- Recommend having same single point of contact per training course to follow up with training participants and captains to evaluate efficacy of training, and continue to support training alumni

- Regular check-ins once job placement is established (minimum monthly for three months)
- Communicate resources that are available to commercial fishermen (see below list)

Mentorship

- Formal mentorship may be offered for existing fishermen that express interest and drive in owning/operating their own business paired with successful current or retired owner/operators of local fishing businesses
 - Mentors should be compensated for their time
 - Pairings should be made based on similarities in gear type/fisheries and desired business structure
 - Time and resources for formal mentorship should only be devoted to those that are serious about remaining in the industry long-term

Resource List

Current Regional Training Programs

- Cape Cod Commercial Fishermen’s Alliance – Fishermen Training Program <https://capecodfishermen.org/our-work/small-business-support/fishermen-training/>
- Cape Cod Cooperative Extension/Woods Hole Sea Grant – Fundamentals of Shellfish Farming <https://seagrant.whoi.edu/community-engagement/aquaculturists/fundamentals-of-shellfish-farming/>
- Fishing Partnership Support Services – Marine Safety Training & Apprenticeship Program <https://fishingpartnership.org/>
- Extreme Gloucester Fishing <https://www.extremegloucesterfishing.com/>
- Commercial Fisheries Center of Rhode Island – Commercial Fishing Apprenticeship Program (Rhode Island) <https://www.cfcric.org/>
- New England Young Fishermen’s Alliance – Deckhand to Captain Training (New Hampshire)

Health and Wellness

- Fishing Partnership Support Services - <https://fishingpartnership.org/>
 - Navigators available to assist with enrolling through MA Health Connector
 - Healthy Harbors – includes dental exams and cleaning, hearing screenings, oral and skin cancer screenings, and flu, tetanus and pneumonia vaccines
 - Partnership with Riverside Trauma
 - Opioid Awareness & Narcan Training
 - Wellness for Women Fishermen
 - Substance Use Disorder (SUD) & Recovery Support
 - Peer to Peer Support Group

Business Planning and Financial Literacy

- Community Development Partnership (CDP) - <https://capecdp.org/>

- Fishing Partnership Support Services - <https://fishingpartnership.org/>
 - Budgeting 101
 - Managing Your Debt & Improving Your Credit
 - Saving and Investing
- SCORE Cape Cod - <https://capecod.score.org/>
 - Free, confidential business advice
 - Mentoring on variety of small business topics
 - Workshops focused on small business management
- EforAll (for entrepreneurs) <https://eforall.org/ma/cape-cod/>
 - Business Accelerator
 - Pitch contests
 - Virtual workshops
- Financing resources
 - Community Development Partnership of Cape Cod <https://capecdp.org/>
 - South Eastern Economic Development Corporation (SEED) <https://seedcorp.com/>
 - Farm Credit <https://farmcredit.com/location/middleboro-branch>
 - Coastal Community Capital <https://www.coastalcommunitycapital.org/>
 - Local banks

Continuing Education and Maritime Resources

- New England Maritime
- Northeast Maritime Institute
- Massachusetts Maritime Academy
- Cape Cod Community College
- The Community School at Cape Cod Tech
- Upper Cape Tech Adult & Continuing Education
- Fishing Partnership Support Services
 - Safety and Survival
 - First Aid/CPR, Ergonomics and Narcan Training
 - Fishing Vessel Stability Awareness
 - Drill Conductor Certification
- Fathom Resources
 - Offshore Marine Safety Training
- Aquaculture Research Corporation (A.R.C.) Hatchery
- USCF “About Boating Safety” course
- Other maritime resources
 - Tides and currents: <https://tidesandcurrents.noaa.gov/>
 - Nautical charts: <https://nauticalcharts.noaa.gov/>
 - USCG materials – visit the USCG website (<https://www.dcms.uscg.mil/>) for the most recent versions of:
 - USCG Navigation Rules
 - USCG Boat Crew Seamanship Manual

- U.S. Coast Guard Boat Operations and Training (BOAT) Manual, Volume I and Volume II
- United States Coast Pilots
 - Coast Pilot 1, Atlantic Coast: Eastport, Maine to Cape Cod, Massachusetts
https://www.nauticalcharts.noaa.gov/publications/coast-pilot/files/cp1/CPB1_WEB.pdf
 - Coast Pilot 2, Atlantic Coast: Cape Cod, Massachusetts to Sandy Hook, New Jersey
https://www.nauticalcharts.noaa.gov/publications/coast-pilot/files/cp2/CPB2_WEB.pdf

Affordable Housing

- Housing Assistance Corporation Cape Cod
- Community Development Partnership

Off-season Work Opportunities

- Kelp aquaculture
- Shellfish – wild harvest
- Fill-in trips in other fisheries
- Off-season gear work in same or other fisheries
- Seasonal work in industry shoreside support role
- Other maritime work (i.e. dredging, research vessels)
 - Note that many other maritime work requires USCG mariner credentials
- Seasonal winter work outside of industry (i.e. construction)

Nonprofits and Professional Fishing Organizations

- Cape Cod Commercial Fishermen’s Alliance
- Massachusetts Lobstermen's Association
- Massachusetts Fishermen’s Partnership
- Fishing Partnership Support Services
- Women of Fishing Families
- Northeast Seafood Coalition
- Gloucester Fishermen’s Wives Association
- New England Young Fishermen’s Alliance
- Massachusetts Aquaculture Association
- Commercial Fisheries Center of Rhode Island
- Massachusetts Seafood Collaborative

DISCUSSION

The scoping process and resulting framework received many supportive remarks from commercial fishermen and stakeholders involved in the development and feedback process. The framework is intended to be used as a resource for fishermen, fishing organizations, and future training programs in the Cape Cod region. We assimilated lessons from other training programs, as well as Fishermen's Alliance's prior experience with the pilot Fishermen Training Program on Cape Cod. In learning from the outreach and recruitment of other programs and regions, it was evident that the geography and demographic of Cape Cod may require significantly more diverse and larger volume of outreach and recruitment strategies in order to obtain enough participants for regular training programs. Established programs, such as in Alaska and Rhode Island, have used relatively minimal recruitment in comparison to what has been necessary in southeastern Massachusetts.

Although this framework is tailored toward the small-boat Cape Cod fleet, we acknowledge that training needs are extremely variable even within the state of Massachusetts. In the scoping process, we received several pieces of feedback from regional fishing communities off-Cape that suggested a longer, much more intensive training program would be necessary to accommodate the needs of their bigger offshore boats. The composition of the fleets in ports such as New Bedford and Gloucester are significantly different from Cape Cod in vessel size and trip duration, resulting in different training needs. Additionally, some of the skills-specific workshops are also very port-dependent. For example, net mending is a very specific skill that was rated of lowest importance in our local scoping, but is of extremely high value, and even sometimes necessity, in other larger regional ports that have many druggers (fishing vessels that use trawl gear).

In scoping the varying levels of training offered around the country, we distinguished what program characteristics may be applicable locally. The Extreme Gloucester Fishing Commercial Fishing Training Center has a 24-week, 40-module curriculum that is representative of the training needs of the Gloucester fleet, including skills specific classes such as Introduction to Basic Net Mending. The course is a part-time commitment during the six-month training period. The Commercial Fishing Apprenticeship Program by the Commercial Fisheries Center of Rhode Island is a four-week, full-time commitment that provides training on land and at sea, and a stipend upon completion. This program is very well-established and appropriately suits the needs of vessels and fishing businesses in the Point Judith area. Alaska Longline Fishermen's Association has a Crew Training Program in which applicants are paired with captains participating in the program. Following this initial pairing, participants may spend varying amounts of time working in the industry depending on subsequent interest. The New England Young Fishermen's Alliance (NEYFA) new Deckhand to Captain Training Program has a very strong curriculum that includes the following topics:

- Business Management and Planning
- Industry regulation, permitting, licensing, marketing, networking, public speaking
- Collaborative Marketing and the NH Food Hub

- Collaborative Research and/or Advocacy 15 hrs
- Safety and Survival Training/Drill Conductor Training /2 day training
- Implementation and Follow up on Business Plan with Mentor

This level of training and support is important to help fishermen progress in their careers. NEYFA's well-planned curriculum is a strong model for the region, and should be considered for best practices of industry retention for any organization planning an advanced fishermen training course.

One of the topics that surfaced most frequently in scoping existing programs was insurance cost related to boat and/or at-sea portion of training. A fishing vessel owner's typical insurance policy covers the captain and crew, but does not cover a training class or an individual who is on the trip as part of a training class. Unanimous feedback on this topic recommended that funding be made available to cover costs of vessel insurance to ensure that training program participants be able to embark on fishing vessels. Fishermen and other stakeholders concur that even the best classroom course of setting expectations does not replace the value of going out on a fishing boat (or participating in another type of fishery/aquaculture) in order for an individual to determine if they are suited for this type of physically and mentally demanding career.

Based on significant scoping, including many individual follow-up interviews with experienced commercial fishermen, it was determined that the program priorities for the small-boat fleet on Cape Cod are:

- 1) Recruitment – overall captains have expressed exasperation over the difficulty in finding any crew, with or without previous fishing experience,
- 2) Safety Training – this was identified as the single most important training priority for both new and existing fishermen,
- 3) Introduction to Local Fisheries – many prospective fishermen, and even some existing fishermen, are not aware of the multitude of job opportunities across fisheries on Cape Cod, so it is important to have a platform to communicate what fisheries exist, including wild, aquaculture, and charter.

These priorities were reflected in the final survey that was offered to local fishermen. In ranking the importance of potential fishermen training topics, respondents identified the top three priorities in this order: 1) marine safety training, 2) deck safety, and 3) introduction to local fisheries. Although of importance, basic skills and on-the-water training ranked slightly lower. An overwhelming majority of captains responded that they would hire a “green” deckhand with minimum training of marine safety training and introduction to fisheries. Several of these responses expanded to explain that the key factors are 1) recruitment – assistance in actually finding potential deckhands is a priority, and 2) willingness to learn/work hard, citing that many boats do things differently anyway so some captains may prefer to train directly on the boat for specific processes and skills.

Another finding that was confirmed throughout scoping and in the final fishermen survey was the preference for individual trainees to participate in one or more actual fishing (or

aquaculture, etc.) trips. In addition to this enhancing their ability to evaluate fishing/aquaculture as a potential job, this also caters to a one-on-one learning style. This level of instruction was reviewed as very important to existing captains and industry business owners, many of whom cited their own learning styles being best suited to hands-on, one-on-one training.

It is evident that accessible means of communication is extremely important in disseminating information and advertising any future program opportunities. Throughout follow-up interviews and final surveys, several fishermen commented that they learned about existing resources for fishermen through this scoping process. Although the community may have a variety of resources, it is essential that these resources be listed somewhere accessible for fishermen, and that they be included in any future training program.

As fishermen and other stakeholders seek to promote fishing and aquaculture as viable career paths, it is also important that this message be communicated earlier than working age. Feedback suggested that perception of the industry begins at a young age, around elementary school. Although this is not the target age for a training program, it would be beneficial to devote resources to educating on the cultural importance of fisheries at this level in order to shed positive light on the industry and prevent later challenges in recruitment. Fostering a positive image of the industry at a younger age and highlighting it as a viable career option is important to our community.

For further development of curriculum, it is recommended that training programs continue to be researched at the national level and that the findings, including frameworks and curriculums, be made available in a nationwide database. This would be especially beneficial for developing industries, such as aquaculture.

We look forward to the continued development of fishermen training programs around the country and in the Cape Cod region.

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APPENDIX A: RELATED ARTICLES

Fishermen's Alliance | Hookers Ball 2022, Aug. 2022:

<https://www.youtube.com/watch?v=8hx4eBJhW28>

SENATE CJS APPROPRIATIONS SUBCOMMITTEE SEEKS TO FULLY FUND THE YFDA FOR FY23, Aug. 2022: <https://fishingcommunitiescoalition.org/news/2022/8/2/senate-commerce-justice-and-science-appropriations-subcommittee-seeks-to-fully-fund-the-young-fishermens-development-program-for-fy23-1>

HOUSE DRAFT CJS REPORT FOR FY23 INCLUDES FUNDING FOR YOUNG FISHERMEN, Jun. 2022: <https://fishingcommunitiescoalition.org/news/2022/6/27/house-draft-cjs-report-for-fy23-includes-funding-for-young-fishermen>

Training Blueprint Looks to Bolster Industry, Mar. 2022:

<https://capecodfishermen.org/training-blueprint-looks-to-bolster-industry/>

FY22 Appropriations Omnibus Includes Funding for Young Fishermen, Mar. 2022:

<https://fishingcommunitiescoalition.org/news/2022/3/17/fy22-appropriations-omnibus-includes-funding-for-young-fishermens-development-program>

Cape Cod Commercial Fishermen's Alliance + MIT Sea Grant Stakeholder Meetings: March 2 + 4: <https://seagrants.mit.edu/2022/02/22/cccf-a-mit-sea-grant-stakeholder-meetings/>

Cape Cod Commercial Fishermen's Alliance + MIT Sea Grant Virtual Stakeholder Meetings: <https://myemail.constantcontact.com/Cape-Cod-Commercial-Fishermen-s-Alliance-and-MIT-Sea-Grant-virtual-stakeholder-meetings-March-2---4.html?soid=1103223012237&aid=TayJAeABe04>

Alliance Marks 30 Years Advocating For Cape's Commercial Fishermen, Dec. 2021:

<https://capecodchronicle.com/en/5653/chatham/8176/Alliance-Marks-30-Years-Advocating-For-Cape-s-Commercial-Fishermen.htm>

Brackish Waters: Cape Cod Commercial Fishermen's Alliance, Dec. 2021:

<https://ediblecapecod.ediblecommunities.com/shop/brackish-waters-cape-cod-commercial-fishermen-s-alliance>

Finding Crew Members Isn't Easy For Local Fishermen; Alliance Offers Training Program For Industry Newbies, Dec. 2021:

<https://capecodchronicle.com/en/5650/features/8097/Finding-Crew-Members-Isn't-Easy-For-Local-Fishermen;-Alliance-Offers-Training-Program-For-Industry-Newbies.htm>

Photo gallery, Nov. 2021: <https://capecodfishermen.org/photo-gallery-fishermen-training-squared/>

A Weekend of Training, A Life on the Sea, Nov. 2021: <https://capecodfishermen.org/a-weekend-of-training-a-life-on-the-sea/>

Cape Cod Commercial Fishermen’s Alliance To Host Free Fishermen Training Program, Oct. 2021: <https://capeplymouthbusiness.com/cape-cod-commercial-fishermens-alliance-to-host-free-fishermen-training-program/>

Training the Next Generation of Commercial Fishermen, Oct. 2021: <https://capecodfishermen.org/training-the-next-generation-of-commercial-fishermen/>

Sea Grant Funds 11 “Food from the Sea” Career Development Projects: <https://seagrants.mit.edu/2021/09/13/sea-grant-funds-11-food-from-the-sea-career-development-projects/>

Young Fishermen’s Bill Wins Congressional Support, Jan. 2021: https://capeplymouthbusiness.com/epub/2021/2021_january/index.html

If Young Fishermen Learn Their Way In, Then What?, Jan. 2021: <https://provincetownindependent.org/news/2021/01/27/if-young-fishermen-learn-their-way-in-then-what/>

The Young Fishermen’s Development Act Makes it into Law, Jan. 2021 <https://capecodfishermen.org/the-young-fishermens-development-act-makes-it-into-law/>

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YOUNG FISHERMEN'S DEVELOPMENT ACT PASSES CONGRESS, Dec. 2020: <https://fishingcommunitiescoalition.org/news/2020/12/20/young-fishermens-development-act-passes-congress>

Cape Cod Commercial Fishermen’s Alliance Looks to Give New Life the Profession, Dec. 2020: <https://www.capecod.com/newscenter/cape-cod-commercial-fishermens-alliance-looks-to-give-new-life-the-profession/>

From Starfish to Scup, Dec. 2020: <https://capecodfishermen.org/from-starfish-to-scup-a-fishermans-journey/>

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The ABCs of Fishing, Mar./Apr. 2020, <https://capecodfishermen.org/the-abcs-of-fishing/> and <https://www.wickedlocal.com/story/cape-codder/2020/04/24/future-crew-learn-abcs-fishing/1295827007/>

Tech students learn mechanics of fishing, Mar. 2020: <https://www.wickedlocal.com/story/cape-codder/2020/03/18/tech-students-learn-mechanics-fishing/1501060007/>

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Looking Toward a Fishing Future, Feb. 2020: <https://capecodfishermen.org/looking-toward-a-fishing-future/>