

PROJECT TITLE: Gear Innovations Testing and Validation in the California Dungeness Crab Fishery

A. CONTACT INFORMATION

Provide contact information for key participants, including the applicant and, if applicable, the entity administrator and any authorized agent(s). If any key participant does not have a Get Outdoors ID (GO ID) or commercial fishing license (CFL) number, they must provide information for CDFW to create a new customer profile pursuant to subsection 91(c)(2)(A)(1), Title 14, CCR.

1. Applicant

Name	National Marine Sanctuary Foundation
Title and Affiliation	
Mailing Address	8455 Colesville Rd., Ste. 1275, Silver Spring, MD, 20910
Email Address	https://marinesanctuary.org/contact/
Telephone Number	(301) 608-3040
GOID or CFL Number	
If no GOID or CFL number:	Please provide the following information.
Residence Address (if different from mailing)	
Date of Birth	
Height	
Eye Color	
Hair Color	
Weight	
Gender	
Personal Identification	A copy of DMV ID, passport, military ID, or other acceptable form of identification as listed in subsection 700.4(c), Title 14, CCR.

2. Entity Administrator (if applicable)

Name	Greg Wells
Title and Affiliation	Gear Innovations Manager, National Marine Sanctuary Foundation
Mailing Address	[Mailing Address Omitted]
Email Address	[Email Address Omitted]
Telephone Number	[Telephone Number Omitted]
GOID or CFL Number	[GOID or CFL Number Omitted]
If no GOID or CFL number:	Please provide the following information.
Residence Address (if different from mailing)	[Residence Address Omitted]
Date of Birth	[Date of Birth Omitted]
Height	[Height Omitted]
Eye Color	[Eye Color Omitted]
Hair Color	[Hair Color Omitted]
Weight	[Weight Omitted]
Gender	[Gender Omitted]
Personal Identification	A copy of DMV ID, passport, military ID, or other acceptable form of identification as listed in subsection 700.4(c), Title 14, CCR . [Personal Identification Omitted]

3. Authorized Agent(s) (if applicable)

Using the table below, complete a separate entry for each authorized agent.

Name	Marc Alley
Title and Affiliation	Owner/Operator, F/V Ronna Lynn
Mailing Address	[Mailing Address Omitted]

Email Address	[Email Address Omitted]
Telephone Number	[Telephone Number Omitted]
GOID or CFL Number	[GOID or CFL Number Omitted]
If no GOID or CFL number:	Please provide the following information.
Residence Address (if different from mailing)	
Date of Birth	
Height	
Eye Color	
Hair Color	
Weight	
Gender	
Personal Identification	A copy of DMV ID, passport, military ID, or other acceptable form of identification as listed in <u>subsection 700.4(c), Title 14, CCR.</u>

Name	Khevin Mellegers
Title and Affiliation	Owner/Operator, F/V Areona
Mailing Address	[Mailing Address Omitted]
Email Address	[Email Address Omitted]
Telephone Number	[Telephone Number Omitted]
GOID or CFL Number	[GOID or CFL Number Omitted]
If no GOID or CFL number:	Please provide the following information.
Residence Address (if different from mailing)	
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B. STATEMENT OF PURPOSE

1. Describe the purpose and goals of the proposed project, including how the project meets or is consistent with the policies of [Fish and Game Code \(FGC\) Section 7050](#).

Purpose and Goals

The purpose of this Experimental Fishing Permit (EFP) is to support a collaborative research project testing fishing gear innovations aimed at mitigating the risk of marine life entanglements while providing increased fishing opportunities in the California Dungeness crab fishery. This project is being developed utilizing a collaborative process with fishermen testing and evaluating multiple gear types with the goal of progressing toward a win-win solution that can sustain fishing opportunities while protecting whales. The Foundation seeks to build partnerships and collaboration to advance a multi-pronged approach to whale conservation that includes support for fishing gear innovation, lost gear recovery, workshops to improve whale disentanglement response, and research to identify co-occurrence between whales and human activities. The Foundation is uniquely positioned to facilitate this effort given our role as a neutral entity to facilitate a collaborative testing design, our strength in partnership and relationship building, and continued commitment to find solutions through science-based, community-driven efforts.

In 2020, CDFW implemented new regulations (known as the Risk Assessment and Mitigation Program or RAMP) to proactively address entanglement risk associated with the Dungeness crab fishery. While an important tool for managing risk, recent mitigation strategies have resulted in consecutive years of closures and shortened seasons, impacting fishermen who rely on revenue from a full crab season. Under the RAMP, CDFW can approve the use of alternative gear and methods during closures after April 1 if they meet certain criteria and regulatory requirements. This EFP provides a robust project design that will allow fishermen to experiment with multiple gear types to assess their performance, feasibility, and compatibility in the fishery under normal operating conditions. This project addresses a priority need and interest to gather necessary data to support decisions on alternative gear use that would allow fishermen to extend their season while preventing whale entanglements in the Dungeness crab fishery.

If approved, this EFP would allow up to five Dungeness crab vessels to test pop-up gear in state waters off central California. Each vessel will test up to four different systems, up to 20 units each, using single traps in a manner consistent with normal commercial fishing operations. Vessels would deploy and retrieve gear during single-day trips, returning to port after each trip. Trap soak time would range from 1 to 4 days. Activity under the EFP may occur throughout the year but will largely occur between April and October. Catch would only be retained and landed if the Fishing Zone where gear was deployed is open for

commercial activity (i.e., not closed pursuant to Fish and Game Code § 8276, CCR Title 14, § 132.8, or elevated domoic acid).

The goals of the project are to: 1) generate data for objective assessment of gear performance and how it integrates into existing fishing operations 2) evaluate the ability of gear location marking systems to reliably mark and locate gear on the seafloor, 3) provide feedback to gear manufacturers on gear improvements and how to tailor designs to the needs of fishermen, and 4) identify research priorities and needs to further the development and testing of gear innovations in collaboration with fishermen.

This project is consistent with and supports several of the policies of FGC Section 7050 by addressing the following:

- Supporting a collaborative process to test and evaluate innovative fishing strategies that would be beneficial for maintaining the health and diversity of California's marine ecosystems and living resources, particularly threatened and endangered whales and sea turtles.
- Advancing the collection and sharing of credible data and information to support decision making for sustainable resource management.
- Creating a pathway for increasing fishing opportunities for fishermen (i.e., through access to closed areas using approved alternative gear that minimizes entanglement risk), recognizing the importance of the California Dungeness crab fishery to the economy and culture of California.

2. Provide a list of proposed project activities that are prohibited under current state fishing laws or regulations (cite the specific section number(s), if known), and the reasons to justify authorization (exemption) of those activities under the EFP.

As detailed further below, the project would trial multiple pop-up fishing systems¹ in state waters. To conduct these trials and accomplish project goals, vessels would require exemptions from the following Dungeness crab fishery regulations.

FGC § 9005 - Every trap or string of traps shall be marked with a buoy.

¹ Pop-up gear is a gear innovation designed to reduce the risk of whale and other marine life entanglements in fixed gear fisheries by minimizing the amount of time that vertical buoy lines are present in the water column.

We request an exemption from marker buoy requirements to allow pop-up gear to be deployed without vertical buoy lines. This exemption is needed to evaluate the real-world performance and feasibility of pop-up gear in the Dungeness crab fishery.

FGC § 8276.5 and Section 132.1(b) – Every trap shall contain a trap tag affixed to the main buoy.

As above, we request this exemption to allow pop-up gear to be deployed without vertical buoy lines. Buoy tags will be affixed to the main buoy or as otherwise specified by CDFW.

FGC § 8276(d) - All Dungeness crab traps shall be removed from state waters by 11:59 pm on the last day of the season.

We request this exemption to provide vessels with greater flexibility and opportunity to test new gear types and technologies, including during fishing zone closures in the spring implemented under the RAMP (typically April-June) and outside the scheduled fishery season.² Testing activities are anticipated to occur from April to October. Catch will only be retained for sale during the open fishing season as defined by CCR Title 14, § 132.8. Traps will be closed and unbaited when conducting testing activities during the closed season.

CCR Title 14, § 132.8 - Risk Assessment Mitigation Program

We request an exemption from the Risk Assessment Mitigation Program triggers for management action outlined in subsection c. This exemption is requested to support and encourage gear innovation testing without the risk and concern of reaching the thresholds that would trigger a management response, which could have consequences for the fishery.

C. STATEMENT OF QUALIFICATIONS

Respond to each of the following statements by providing relevant qualifications to demonstrate the ability of the applicant and, if applicable, other key participants to perform the necessary duties and responsibilities to carry out the proposed project. PLEASE NOTE: If any scientific or technical assistance is requested of CDFW, pre-application consultation is required.

1. Lead and provide supervisory oversight for all activities of the permit under the authorizations, standard terms, and special conditions.

² The scheduled season runs from November 15 to June 30 in the Central Management Area and from December 1 to July 15 in the Northern Management Area (Fish & G. Code § 8276).

The National Marine Sanctuary Foundation's Gear Innovations Manager, Greg Wells, located in Santa Cruz, CA, will provide operational oversight of the project to ensure activities follow the terms and conditions of the permit, ensure compliance with state regulations, and coordinate among the partners and managers.

Greg is leading the Foundation's efforts to work in collaboration with Dungeness crab fishermen, state and federal resource agencies, gear manufacturers and companies, and other partners to test and evaluate fishing gear designed to mitigate marine life entanglements in California. In this capacity, Greg is responsible for the management and coordination of the project, including recruiting and training fishermen, overseeing field operations, and supporting the collection, analysis, and reporting of project data. Greg is also responsible for communicating project progress, successes, and impact.

Greg has more than 15 years of experience supporting fisheries management and conservation initiatives, working with diverse stakeholders including fishermen, state and federal managers, non-government organizations, scientists, and the concerned public. Greg holds a master's degree in marine biodiversity and conservation from the Scripps Institution of Oceanography and a bachelor's degree in marine biology from Sheldon Jackson College in Alaska.

Erin Jaszczak, Program Operations Manager for Conservation and Science, will handle contract management, reporting requirements, compliance, and operations. Erin manages projects and supports implementation teams with budgeting, contract, and grant management, spend planning, and award compliance. She received a Bachelor of Arts in Sociology from the University of Florida and a master's degree in Global Sustainability with a concentration in Sustainable Tourism from the University of South Florida's Patel College of Global Sustainability.

Tj Tate, Director of Conservation, will supervise staff and provide project leadership. Tj provides leadership for the Foundation's growing portfolio of conservation and restoration programs across the National Marine Sanctuary System and beyond. Tj's career in fisheries and seafood sectors includes 25 years of experience connecting environmental and social sustainability with economic opportunity. Tj is a Seaweb Seafood Summit Visionary Awardee, a member of the White House Task Force for Sustainable Seafood focused on the future of Aquaculture, a Fish 2.0 Impact Advisor, a member of the Steering Committee for the Coalition for U.S. Seafood Production, and a Fellow in the Seafood & Oceans Leadership Institute, among several other board and committee duties.

The National Marine Sanctuary Foundation is the national, non-profit partner to the federally managed National Marine Sanctuary System. The Foundation works with NOAA partners and other federal and state resource managers, scientists, other non-profits,

businesses, and coastal communities to support on-the-water conservation projects, education and outreach programs, and scientific research.

2. Experience in identification, methods, and protocols specific to the requested species listed under [Section E.2.](#) of this document.

This information will be collected by fishermen participating in the EFP, all of whom have over 30 years of commercial fishing experience and proper identification, handling and release, and reporting of target and incidental catches.

3. Obtain all appropriate authorizations and oversee quality control measures to assure conformance to the specified standards or requirements (e.g., take appropriate measures to ensure, promote, and facilitate compliance).

Greg Wells, Gear Innovations Manager of the National Marine Sanctuary Foundation, will be responsible for obtaining required authorizations and ensuring conformance with EFP standards and requirements. Gear manufacturers will provide the necessary technical assistance, training, support, and quality control as it relates to their gear.

4. Train all persons operating under the permit.

The National Marine Sanctuary Foundation will host multiple training sessions with EFP participants covering the project's goals, testing procedures, data collection, and the set-up, operation, and maintenance of experimental gear. Greg Wells, Gear Innovations Manager with the Foundation, will manage and organize training workshops in collaboration with gear manufacturers. All the gear manufacturers are highly experienced, offer specific knowledge and expertise in their gear designs, and have carried out similar trainings in other fisheries that are exploring the use of pop-up fishing gear.

5. Coordinate field activities and communicate field findings with CDFW Marine Region.

Greg Wells, Gear Innovations Manager of the National Marine Sanctuary Foundation, will coordinate field activities and communicate findings with CDFW Marine Region. Greg has been communicating and collaborating with the fishing community and CDFW over the past two years related to gear innovation testing in the California Dungeness crab fishery.

6. Collect, analyze, and transmit data gathered under the EFP to CDFW Marine Region.

Greg Wells, the National Marine Sanctuary Foundation’s Gear Innovations Manager, will manage and oversee the collection, analysis and reporting of data gathered under the EFP. Fishermen will be trained to collect data using supplied datasheets, and all have relevant experience in data gathering efforts (fishery logbooks, surveys, field observations, etc.). It is envisioned that a data analyst will be contracted to provide independent analysis of the results. The project’s approach to evaluating trial outcomes will be outlined in a data analysis and interpretation plan.

D. PERMIT APPLICATION TYPE

1. Select desired permit tier.

- Tier 1 (For purposes other than exploratory fishing)
- Tier 2 (For purposes other than exploratory fishing with assistance from CDFW)
- Tier 3 (For the purpose of exploratory fishing)
- Tier 4 (For the purpose of exploratory fishing with assistance from CDFW)

2. Request [permit fee reduction option](#) consideration.

- Yes No

3. Has pre-application consultation with CDFW taken place with respect to this proposal? (Required for a Tier 2 EFP, Tier 4 EFP, or permit fee reduction option)

- Yes No

If yes, attach a copy of the pre-application consultation summary letter or provide the name and contact information of CDFW staff with whom the applicant consulted:

A pre-application consultation meeting occurred on June 1, 2022, with Morgan Ivens-Duran (CDFW Marine Region staff). Morgan Ivens-Duran also provided written feedback on January 13, 2023.

E. PROJECT DESCRIPTION

Describe the proposal and any other relevant details, including:

1. A description of the experimental design and research plan, including specific procedures for data collection, storage, processing, and analysis; and a timeline for implementing the project, including, if applicable, when compensation fishing is expected to occur.

The experimental design includes the testing and evaluation of multiple pop-up fishing systems. Participating vessels will conduct field trials of the gear under varied conditions to generate information to assess its performance and feasibility in the commercial Dungeness crab fishery. The project is expected to have a duration of four years. Information collected under this EFP will provide the information needed to inform future decisions about gear innovations that could be used when the fishery is otherwise closed due to elevated entanglement risk.

Research Questions

The project intends to answer the following questions:

- 1) Can fishermen deploy and retrieve gear using their existing set up (e.g., standard traps, hydraulics, etc.) or with minor modifications?
- 2) Is gear retrieval reliable in a variety of sea conditions and depths (i.e., out of 100 deployments, what % of retrievals are successful)?
- 3) Are fishermen able to reliably mark and relocate gear using provided gear location marking systems?
- 4) Do gear location marking systems provide the necessary information to law enforcement to support monitoring and at-sea inspection of gear?

Research Plan

We propose to conduct pop-up gear testing activities in two stages with participating fishermen. Stage 1 will consist of hands-on training and instruction for participating vessels including testing procedures, data collection and practice operating the gear dockside and at sea. In Stage 2, fishermen will trial gear without vertical buoy lines, which will allow for assessment of gear performance based on the criteria and benchmarks specified in the California Dungeness Crab Fishing Gear Working Group's Gear Innovations Research & Development Guidelines.³

Testing stages:

³ California Dungeness Crab Fishing Gear Working Group's Recommendations Memo . Nov 12, 2019. http://www.opc.ca.gov/webmaster/_media_library/2019/11/CAWhaleWorkingGroup_HighlightsRecommendationSMemo_SeptOct2019_FINAL.pdf

- **Stage 1 (Training):** In-person training with gear manufacturers to ensure that fishermen are proficient in using the gear. The trainings will cover how the system works, gear rigging and maintenance, and practice operating the system both dockside and at sea under field conditions. Trainings will also cover data collection and submission processes as well as ensuring compliance with the EFP permit. This stage will be completed in approximately two days per vessel/gear type, though the timing will depend on the readiness of participating fishermen. A minimum of 10 successful deployment/retrieval cycles (without problems) per system must be accomplished. A successful deployment is defined as the ability to arm, deploy, virtually mark, relocate and safely retrieve gear under normal fishing conditions. During this stage, vessels will carry out practice deployments using a reserve buoy⁴ or an attached backup line and a surface marker buoy. Additionally, it is our intent to involve CDFW in these trainings to provide the practical knowledge and experience needed to monitor and enforce EFP activities as well as help inform future regulatory and enforcement needs for authorization of alternative gear under the RAMP. Stage 1 is anticipated to begin in May/June, depending on timing of EFP issuance.
- **Stage 2 (Testing without vertical buoy lines):** Fishermen will test gear without vertical buoy lines. This will allow the gear to be trialed as it was intended and designed to function and provide the data necessary to answer key questions regarding gear reliability, gear efficiency, gear location marking, and safety. Data will be recorded using supplied datasheets. Each vessel will test up to four different systems under normal operating conditions. Stage 2 is expected to require 1 month per vessel/system.

During both stages, gear will be tested as single traps.

Data Collection, Analysis, and Storage

Data will be collected by participating fishermen using datasheets. The Foundation’s Gear Innovations Manager would assist with data collection, when available. Data includes basic information on gear configuration (e.g., trap size, buoy and rope characteristics), the time and location of gear deployments and retrievals, water depth and bottom type (e.g., slope incline and substrate type), ocean and weather conditions (current speed, wave height, wind speed, visibility), catch (number of crab per trap)⁵, and the performance of the gear (e.g., retrieval success/failure and factors affecting the performance). The data collection set is as follows:

Gear configuration

Deployment

⁴ Reserve Buoy with Electronic Time Release (<https://www.resqunit.com>)

⁵ Catch would only be recorded during the open fishing season as defined by CCR Title 14, § 132.8.

- Trap weight (lbs.)
- Trap dimensions (in)
- Buoy type & number
- Rope diameter (in)
- Rope manufacturer
- Rope buoyancy
- Unique trap ID
- Date & Time
- Release delay (timed release devices)
- Location (lat/long)
- Depth (ft)
- Rope length (ft)
- Wave height (ft)
- Wind speed (kts)
- Current speed (kts)
- Temperature (F)
- Slope Inclination
- Substrate type

Retrieval

- Unique trap ID
- Date & Time
- Location (lat/long)
- Wave height (ft)
- Wind speed (kts)
- Current speed (kts)
- Temperature (F)
- Visibility (nm)
- Number of crab
- Elapsed time (recovery signal sent, buoy at surface, trap recovered, gear reset)

Additional information

- Gear successfully deployed?
- Gear successfully retrieved?
- Release mechanism operated correctly?
- Line management system deployed to surface?
- Gear released prior to intended retrieval?
- Notes on gear loss, difficulties, gear changes, recommendations to improve design/recoiling, and any other notable information

The Foundation will oversee the collection, input, security, and analysis of trial data. The performance of each system will be evaluated by examining its success/failure rates under commercial fishery conditions. We will explore analyses such as t-tests, analysis of variance (ANOVA) or other more complex statistics to examine any relationships with the covariates (e.g., fishing depth, wind speed, current speed, wave height, substrate type, etc.). The Foundation will also coordinate closely with CDFW to ensure any feedback (e.g., gear operation and design considerations, management and enforcement needs, etc.) is provided to gear manufacturers.

All data will be entered and stored in a secure database managed by the Foundation and project activity updates (as available) will be posted on the Foundation's Gear Innovation webpage throughout the duration of the project. Trial participants' identities will be kept anonymous and only non-confidential information will be published.

2. A list of target species expected to be harvested as samples or for compensation under the EFP, including anticipated amounts (weight or number) and proposed use (e.g., bait, sell, personal use, or other (e.g., research or tag and release)). [Add rows to the table below as needed.](#)

Species Name	Weight or Number	Proposed Use
Dungeness crab	Similar to the level recorded in the commercial fishery	Sell during open season Release outside of season

3. A list of species expected to be taken incidental to fishing conducted under the EFP, including anticipated amounts (weight or number), proposed use (e.g., bait, sell, personal use, discard, or other (e.g., research or tag and release)), and a description of any measures that will be used to reduce incidental catch mortality. [Add rows to the table below as needed.](#)

Incidental catch is expected to be very low and similar to the levels that occur in the commercial fishery. Species that are likely to be caught incidentally during EFP activities are rock crab, lingcod, and octopus. All incidental catch will be returned to the water as quickly as possible to reduce mortality.

4. A description of the mechanisms that will be utilized to ensure that any proposed harvest limit for target and incidentally caught species are not exceeded and are accurately tracked or monitored (e.g., at sea fisheries observers, electronic monitoring, or other reporting method); and, if applicable, a description of the vessel's capacity to accommodate an onboard observer.

Harvest Limits

The EFP does not propose harvest limits for any of the species (target and incidental) expected to be caught during EFP activities. The commercial harvest of Dungeness crab is currently managed based on size, sex, and season restrictions. We anticipate the catch of incidental species will be insignificant. Catch data will be recorded in a manner and format specified by CDFW.

Electronic Monitoring

All vessels will have a Pelagic Data Systems vessel tracking device⁶ on board to track their location and movement during EFP activities. These solar-powered tracking devices can be

⁶ *Pelagic Data Systems*, <https://www.pelagicdata.com>.

programmed to record vessel locations using GPS data at a resolution of one location per minute consistent with the RAMP regulations. The tracking system would remain active at all times for the duration of the project. Location information is logged and stored onboard the device until it can be securely transferred via cellular network to a secured cloud database for authorized access by CDFW.

5. A description of any potential impacts on existing fisheries, habitats, or possible incidental interactions with threatened, endangered, or protected species (e.g., sea turtles, marine mammals, and birds) that could occur as a result of the project.

Overall, the impacts of the EFP are not expected to be significant given the limited nature of the project. The potential impacts on existing fisheries, habitats, and protected species are generally discussed below.

Impacts on existing fisheries

Vessels testing gear without buoy lines may create the potential for gear conflict with active fisheries that operate in the same area, including commercial Dungeness crab and recreational and commercial salmon. Given the relatively small scale of the project, any vessel-gear interactions that occur are expected to be limited and are not anticipated to be higher than what currently occurs in the fishery.

Dungeness crab

The commercial Dungeness crab season in the Central Management Area occurs from November 15 to June 30 and is expected to partially overlap with the proposed timeframe for EFP activities (April-June). However, conflicts are likely to be minimal for the following reasons: 1) Fishing effort is typically low during the April-June timeframe for testing because crab density and catch rates decline later in the season, reducing the likelihood of gear conflicts; 2) EFP activities are expected to largely occur during closures to traditional Dungeness crab gear and outside the fishery season. The commercial fishery has closed early (typically April to June) each year since 2019; 3) EFP activities are limited in scale (in terms of the number of vessels participating in the EFP, amount of gear deployed, and locations) and would take place in areas where gear interactions are less likely to occur.

To the extent that this project contributes to the authorization of alternative gear, the overall long-term benefits should prove positive for the commercial Dungeness crab fishery due to increased fishing opportunities and income for fishermen.

Salmon

The commercial and recreational salmon seasons typically occur May to October and may overlap with the proposed timeframe for EFP activities (April-October). However, conflicts

are expected to be minimal given the limited nature of the proposed project and because salmon fishing effort is managed by spatial and temporal openings and closures that are known in advance, which will allow EFP participants to avoid salmon openings or move deployed gear to mitigate any potential conflicts.

Impacts on habitats

The impacts of EFP activities on habitat are expected to be similar to those that presently occur in the fishery because vessels will mostly operate in the same manner as traditional fishing (except traps will be deployed without vertical buoy lines). The potential impacts resulting from gear loss will be minimized through the use of backup recovery systems, fishing practices (e.g., avoiding fishing in bad weather and in areas with the potential for gear conflict), and reporting of lost gear as part of the data collection.

Impacts on protected species

The gear tested under this EFP was designed to prevent or minimize impacts to protected species by allowing traps to be fished without static buoy lines. Both on-demand and timed-based systems are expected to minimize protected species interactions; however, the level of risk may vary depending on the type of system tested. Time-based systems, where buoy lines are released to the surface for retrieval at a preset time, would decrease the time that line is in the water and reduce the potential for interactions. On-demand systems, which use acoustic signals to release buoy lines when vessels are on site to retrieve gear, are likely to pose less risk of interactions because lines would be present in the water column for a more limited time.

Due to the limited scale of the project, type of gear being tested (i.e., specifically designed to minimize entanglement risk), and because additional measures to minimize entanglement risk will be followed (see Additional Measures), the risk of interactions with protected species is expected to be low.

6. The type and amount of gear to be used, including gear specifications and design, and, if applicable, a description of any measures and/or devices that will be used to reduce bycatch. If the project involves gear modifications or other gear innovations, the description must include the means by which CDFW staff can locate, retrieve, and inspect the proposed gear.

Fishermen will trial multiple pop-up technologies available in the Foundation's gear cache, including acoustic on-demand systems and timed-release devices. Additionally, vessels would utilize virtual gear location marking systems to mark the location of traps on the seafloor, prevent gear conflicts with other fishermen, and support enforcement efforts. A

description of each system to be tested is provided below. The Foundation anticipates additional systems will be added to the EFP in subsequent years.

Desert Star ARC-1XD

The ARC-1XD acoustic release system was designed remove vertical buoy lines from the water column to minimize risks of marine life entanglement and reduce losses from theft, ship strikes, and weather. The system is comprised of an acoustic release mechanism, a deck box and transducer, a release bag that holds the line and buoys, and the Ropeless Fisher and Ropeless Control applications (Figure 1).

The ARC-1XD system has been tested and used by fishermen from Australia, New Zealand, Scotland, South Africa, Jamaica, Massachusetts, Nova Scotia, and New Brunswick. It has been commercially used by fishermen in the Australian New South Wales rock lobster fishery since 2013, in the South African octopus fishery since 2020, and in Jamaica since 2021.



Figure 1. Deck box, acoustic transducer, and release bag with ARC-1XD release.

Release Mechanism

The Acoustic Release Control (ARC) unit attaches to the side of the release bag, which holds the line and buoys in place until the release mechanism is activated by an acoustic command. The ARC release mechanism consists of a replaceable nickel chromium wire seated between two titanium posts with a release lever arm. Upon receiving a release command, an electrical discharge melts the wire, setting free the lever and release cord which allows the line and buoys to exit from the release bag and float to the surface. The release mechanism is re-armed by threading a new length of wire through the titanium posts or inserting a new titanium release cartridge. A galvanic timed release (GTR) installed between the bungee and the release cord will serve as a backup release in the event of

acoustic release failure.⁷ The GTR duration will be longer than the longest anticipated soak time and will be selected by participating vessels with the Foundation.

Line Handling

The line handling system consists of a release bag containing the line and buoys that is suspended above the trap (Figures 2 and 3). The bag is made of plastic oyster mesh framed with PVC piping to help maintain its shape. The bag holds up to 80 fathoms of 3/8-inch line and two 8-inch hard buoys. The line and buoys are held in the bag by a metal wire retainer, which is held closed by a tensioned release cord. The release cord secures around the release lever of the ARC and passes through two metal rings and the retainer before connecting to bungee cord that provides the tension to keep the retainer closed. When the ARC release mechanism triggers, the lever opens and frees the release cord, allowing the retainer to open and the buoys and trailing line to exit from the bag. Once the buoy reaches the surface, the trap is retrieved using existing equipment. To prepare the system for redeployment, the ARC release mechanism is re-armed, the bag is repacked with line and buoys, and the release cord is secured to hold the bag closed.

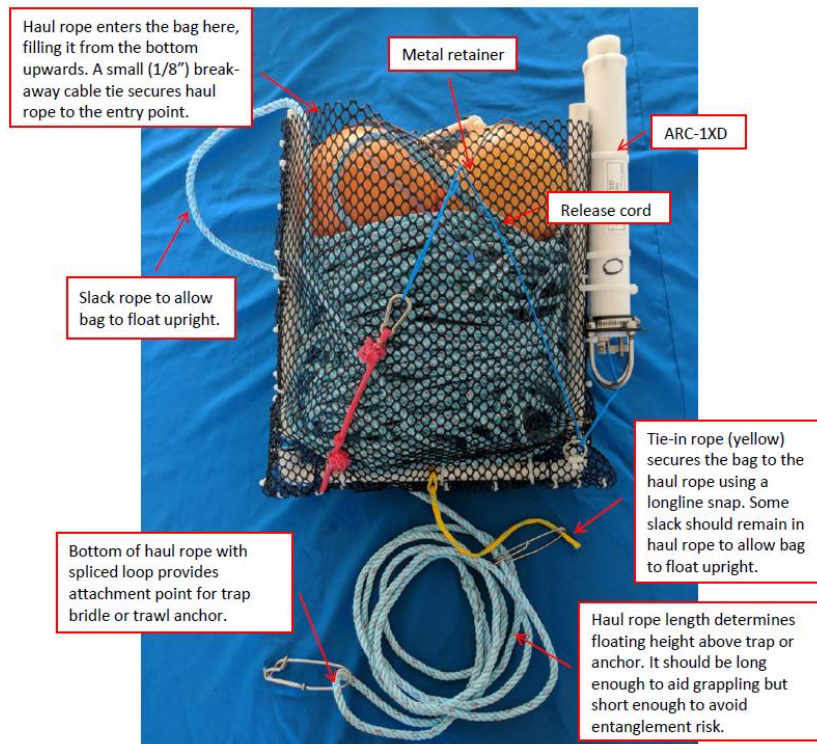


Figure 2. Release bag with attached ARC-1XD.

⁷ Grappling is the preferred backup recovery method for commercial fishermen currently using this system because gear location can be determined using the acoustic ranging function of the ARC-1XD. For single trap fishing, the release bag floating above the trap is the target for the grapple. If deployed as longlines or trawls (not proposed for this EFP), the ground line is the grappling target.

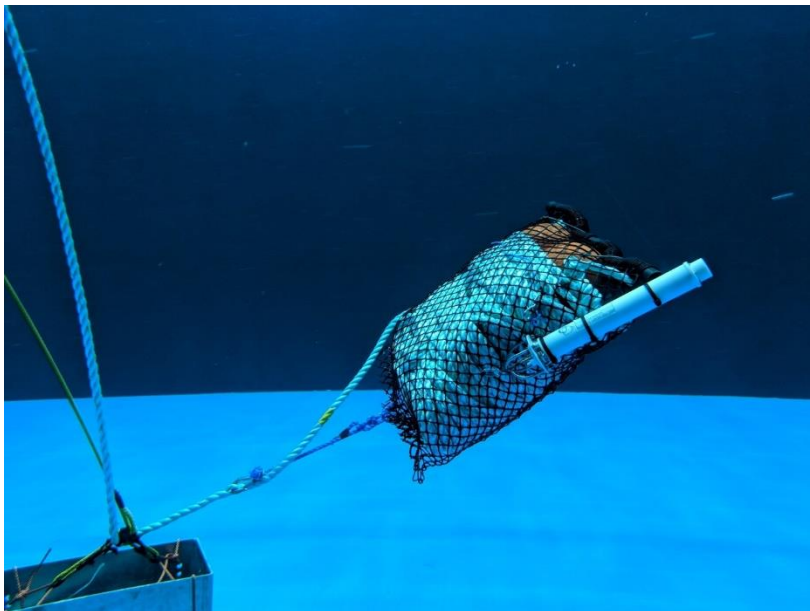


Figure 3. Submerged release bag in flume tank test. Note that the bag is floating upright and is deflected into the current. The opening points downcurrent, allowing floats and haul rope to escape cleanly upon release trigger.

Deck Box and Acoustic Transducer

The STM-3 deck box with an over the side transducer communicates with and commands the ARC-1XD acoustic releases.⁸ An Android app, called Ropeless Control, connects via Bluetooth to the deck box to perform status reporting, ranging, and triggering of individual ARC-1XD acoustic releases. Individual release mode is typically used with larger traps or trawls in deep/high current water where it may be preferable to position the vessel directly above the ARC before commanding a release.

The system also supports a hands-free operating mode that is suitable for small, open boats where the fisher's ability to operate a computer interface is limited or where operations are too fast paced for individual interrogation. In this mode, the deck box transmits a fisher specific release code every 5-8 seconds to activate all fisher owned ARC releases within range of the acoustic signals. This allows for more efficient recovery in low to medium current conditions, with buoys popping up ahead of the approaching vessel. The deck box available to the project is mounted in a waterproof Pelican case for portability during testing. During retrieval, the transducer is lowered into the water to transmit release commands to the ARC releases. The typical communication range is approximately 100-500 meters depending on acoustic conditions and boat transducer selection and mounting.

⁸ Desert Star Systems also offers a hull-mounted transducer that allows ranging to and commanding the ARC-1XD releases while the vessel is underway.

Gear Location Marking

Desert Star Systems Ropeless Fisher (RF) and Ropeless Control (RC) applications are used virtually mark and share the location of deployed traps to prevent gear conflicts and allow law enforcement the ability to inspect gear for compliance.

Ropeless Control is used for virtual gear marking and allows fishers to range to and command individual releases. RC is installed on an Android tablet and is provided with each STM-3 deck box. Ropeless Fisher is a stand-alone app for virtual gear marking. It does not interact with or control the STM-3 deck box. The app is used by fishers who operate in hands-free broadcast release mode, rather than commanding individual releases. RF is a free Android app available from Google Play Store.

Both applications include a map view that displays gear locations and a list view that provides the name of the gear owner and gear deployment information (Figure 4). During gear deployment, fishermen mark the GPS location of each trap or the beginning and end of a trawl. Deployment locations, time and associated details are immediately stored on the local device and sync to a cloud database when in Wi-Fi or cellular range, making the data available to other users. Fishermen can view their gear locations from anywhere while others using the app can view deployed gear within a visibility radius set by the gear owner.

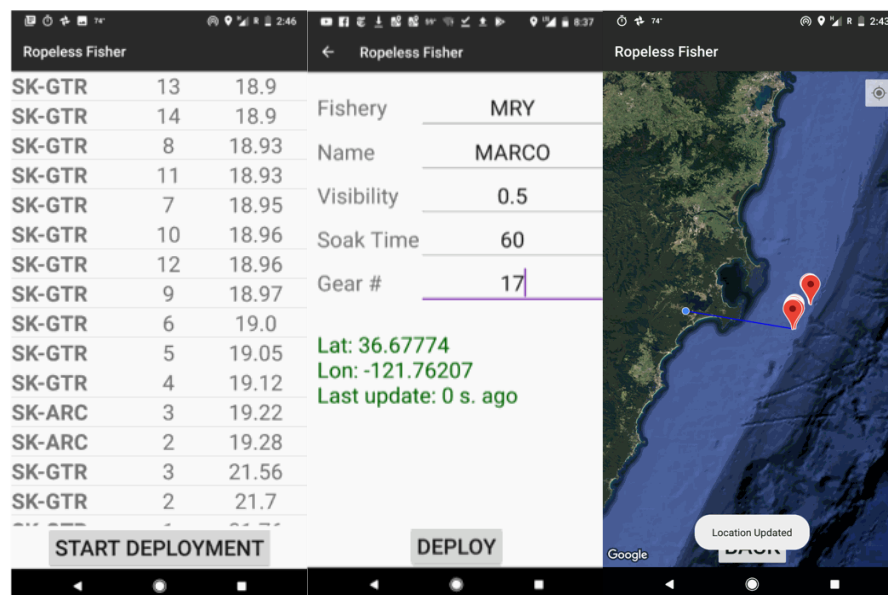


Figure 4. Ropeless Fisher list and map views of ARC-1XD releases.

During gear retrieval, the release button initiates the release process via communication with the STM-3 deck box (if using individual release with RC). If recovery is successful, the gear is marked as hauled by a button click, and the virtual marking is cleared from the application and the cloud. If unsuccessful, the gear is recorded as released, which retains the gear mark information.

Gear mark management and sharing with other fishermen, ocean users and regulators is based on a three-level storage system:

- **Device storage:** RF and RC maintain a database (Google Firebase) on the fishermen's device where new gear marks are stored and displayed in both list and map views. Local storage is always available independent of internet connectivity.
- **Manufacturer cloud database:** RF and RC access a cloud database (Google Firebase) which hosts gear points of all RF and RC users. The local and cloud Firebase are synchronized whenever there is internet connectivity, i.e., via cell phone network or satellite modem.
- **rmwHUB aggregator cloud database:** rmwHUB is a cloud database developed and operated by the Ropeless Manufacturers Working group (RMW), of which Desert Star Systems LLC is a member. The purpose of rmwHUB is to make gear marks from other manufacturers visible to fishermen, thereby avoiding gear conflict. Gear marks are exchanged between the RF/RC cloud database and rmwHUB by a Desert Star operated cloud-based service (HUBlink). HUBlink communicates with rmwHUB using an Application Programmer Interface that has been defined by the RMW.

Law enforcement can use RF or RC to view gear marks and associated information. However, because the visibility limit is supported by RF and RC for fisher privacy protection, law enforcement would only see the marks if within the fisher specified distance. An enforcement version of the app that eliminates the visibility limit could be made available upon request with advance notice. As an alternative to the RF and RC, law enforcement can also view the gear marks of Desert Star and other Ropeless Manufacturers Working Group member companies via a web dashboard for rmwHUB, which can be configured to suit the needs of law enforcement. The Foundation will schedule an onboarding session with CDFW in advance of project activities to ensure access to all necessary information and systems.

EdgeTech 5112

The 5112 Ropeless Fishing System was developed to remove vertical buoy lines from the water column until gear is ready to be retrieved. The system consists of a modified fishing cage with an attached acoustic release with transponder, a deck box unit with transducer, and the EdgeTech Trap Tracker application (Figure 5).

The 5112 system has been tested in real world conditions on lobster and crab fishing boats in Rhode Island, Massachusetts, Maine, Georgia, and Canada. Fisheries and Oceans Canada and NOAA Fisheries have been collecting data on this testing with over 1000 successful deployments and recoveries to date.



Figure 5. 22.5-in configured cage and BLEAT portable deck box with dunking transducer.

Release Mechanism and Line Handling

The 5112 acoustic release and line handling system are integrated into preconfigured cages currently available in three sizes (22.5-inch, 48-inch, and 48-inchXL). The cage sizes available to the project are the 22.5-inch (250 feet 3/8-inch line capacity) and 48 inch (800 feet 3/8-inch line capacity). The cage has two compartments and a floatation cover. One compartment contains the acoustic release and the other holds the recovery line (Figure 6). A bridle line tied to the cage (end opposite the release) provides an attachment point for the crab trap (Figure 7).

Cage recovery is accomplished by sending a unique recovery command through the water to an acoustic release within range. Upon receiving a command, the release mechanism is activated, which disconnects the floatation cover from the cage and carries the line to the surface for recovery. The line and buoys are then retrieved like any other trap. Deploying or resetting the system involves packing the line into the cage, securing the floatation cover, and arming the release for deployment.

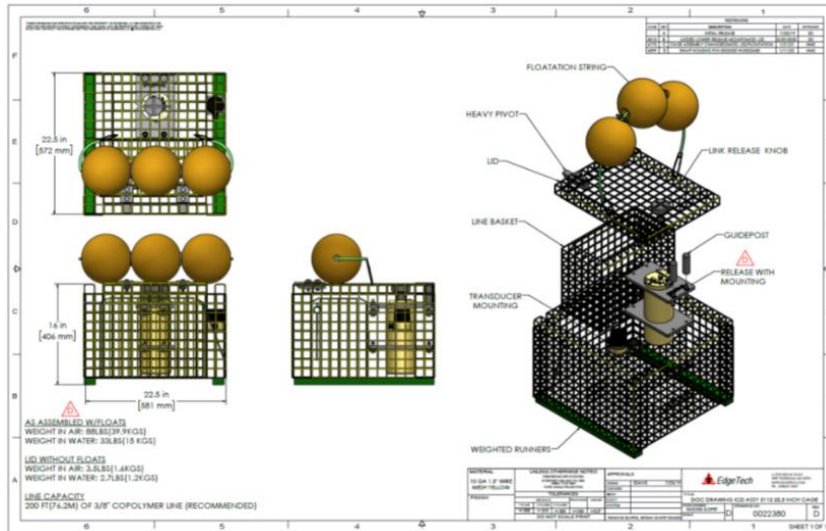


Figure 6. 22.5-inch cage system with separate line basket.



Figure 7. Release cage with bridle line attachment.

Deck Box and Acoustic Transducer

BLEAT (Bluetooth® Low Energy Acoustic Transceiver) deck boxes provide the interface between a Trap Tracker-enabled mobile device and a 5112 system. Commands from the Trap Tracker application are sent to the BLEAT box via a Bluetooth® connection, where they are then interpreted and sent to a 5112 release within range by an acoustic signal using a transducer. Responses are received by the transducer, interpreted, and sent back to Trap Tracker. Response information from the underwater unit include release confirmation, range to underwater unit, and water temperature.

The deck box available to the project is the portable version in a rugged splash-proof case powered by 8 C batteries. A medium frequency dunking transducer will be used to communicate with 5112 acoustic releases.⁹ During retrieval, a dunking transducer is lowered off the side of the boat and submerged several feet below the water surface to send commands and receive responses from a deployed release. The maximum communication range is approximately 2000 meters.

Gear Location Marking

The EdgeTech Trap Tracker application is used to virtually mark and share the location of deployed 5112 releases to help fishermen and law enforcement know where traps are located. Trap Tracker is also used to send commands and receive status information from deployed units. The deployment and recovery history are saved in the application and stored in a secure cloud database. Trap Tracker also has a geolocate function to locate systems in the event gear is moved by a storm or by other means. Trap Tracker is available for both iOS and Android Bluetooth® capable devices. The application does not currently interface with the rmwHUB.

Trap Tracker includes a chart display, an underwater units screen, unit information screen, and unit history screen. To deploy a 5112 release, the user selects the unit to be deployed (by serial number) in the underwater units screen. The deploy button is pressed and a pop-up dialog asks if the user would like to deploy a single trap point or a multi-trap line. The finish button is pressed when the last trap or release cage in the line leaves the vessel. Once completed, the unit's information is updated with the deployment status, date, time, and location (latitude/longitude). To recover a 5112 release, the recover button is pressed in the unit's information screen. When the release receives the recover command, the mechanical release is activated and the buoys and line are released to the surface. Once completed, the unit's information is updated with the recovery date, time, position, the received range, and temperature. Trap Tracker automatically syncs and backs up the latest information on 5112 releases to the cloud database via Wi-Fi or cellular data connection.

⁹ EdgeTech also offers a BLEAT hull-mounted transducer to support 5112 systems.

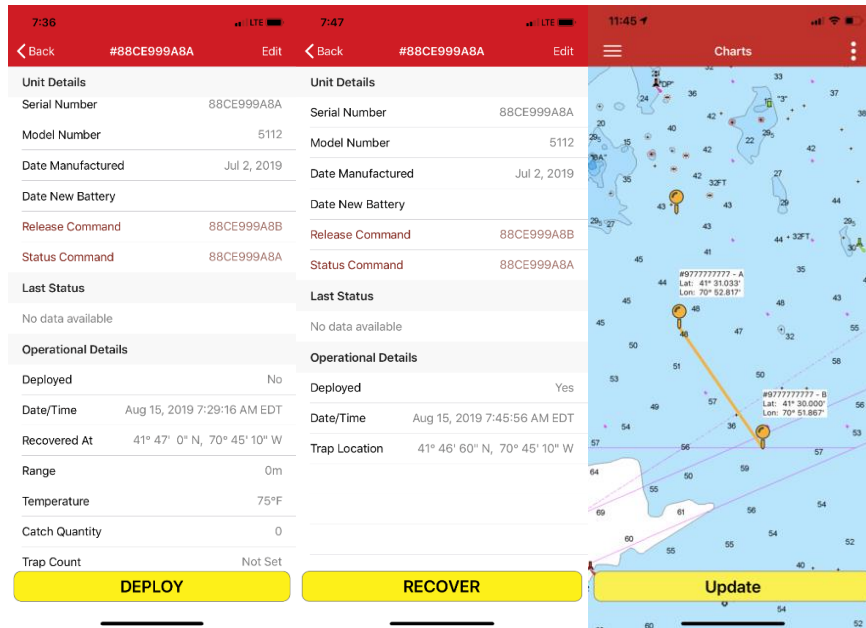


Figure 8. Trap Tracker unit information screen and chart display.

Using Trap Tracker’s chart feature, fishermen can view their deployed trap locations on a Navionics nautical chart from any distance while other vessels using the application can see deployed gear within a 5-mile radius. Enforcement and regulators will have special, secure access to information from the database to ensure compliance with requirements. The EdgeTech Trap Tracker application that controls the 5112 system and database interface is available from the Apple and Google Play stores. EdgeTech offers subscription access to the cloud database features or data may be exported as a data dump with access granted by EdgeTech after creating a user account. The Foundation will schedule an onboarding session with CDFW in advance of project activities to ensure access to all necessary information and systems.

Fiomarine Fiobuoy

Fiobuoy® is a submersible marine marker buoy and gear retrieval system that integrates an acoustic release, buoyancy-flotation capacity, a surface marker, and retrieval line into one device. The design, similar to a large yo-yo, attached to gear on the seafloor, provides for secure line storage while deployed, and a controlled release of the line when triggered. This device has been used successfully in the defense (including US Navy), research, and oil & gas market spaces for over 20 years. Fiobuoy has also been deployed in Dungeness crab, snow crab, lobster and other similarly configured fisheries. The total system comprises the Fiobuoy, a deck control unit, and an acoustic transducer (Figure 9).



Figure 9. Deck unit, acoustic transducer and AC100 model Fiobuoy.

The Fiobuoy body can be manufactured in various depth ratings and sizes, for instance allowing for storage inside crab traps during transportation, thereby minimizing deck space footprint. A standard capacity carries 120m of 10mm line wound onto the body/spool providing a system for operations in 100 meters of seawater. More significant depth requirements are accommodated with larger body models.

Release Mechanism and Line Handling

The Fiobuoy's design incorporates the acoustic release and line handling in a spool-shaped body. The line is secured around the spool until the release mechanism is activated by an acoustic command or through the pre-programmed time/date function using the Fiobuoy's own internal clock/calendar (accurate to 20ppm). When the release is actuated, a mechanical jaw opens to release a pin (Figure 10) allowing the line to unwind (like a yo-yo backwards) as the Fiobuoy ascends to the surface for recovery. The Fiobuoy's programmable time release provides a backup in case of acoustic release failure. The system also has internal self-diagnostics which can trigger a release if a problem such as a low battery is detected.

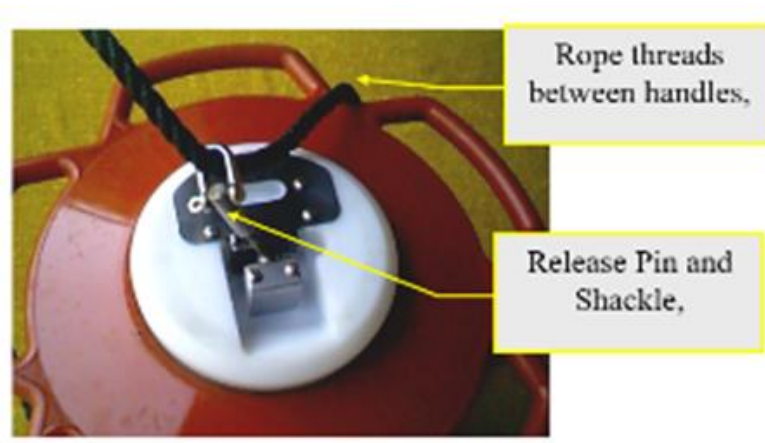


Figure 10. Release pin and line configuration pre-deployment

Preparing for re-deployment requires the rope to be rewound on the Fiobuoy body, new deployment parameters (if needed) are programmed in via the deck unit, and the release pin is clicked into the jaw by hand. Customizable manual and automated rope spooling accessories are available for the surface support vessel to streamline deck operations.

Deck Unit and Acoustic Transducer

Each Fiobuoy is addressed individually via a deck unit using a unique six-digit security access code. An acoustic transducer on the vessel is required to facilitate communications between the deck unit and the deployed Fiobuoy.

The deck unit contains the user interface screen with simple navigation buttons, electric power, GPS, and a 10m cabled acoustic transducer. The system retains a database of all Fiobuoys, acoustic release codes, GPS locations, and pre-programmed time/date releases.

Prior to deployment, the deck unit connects to the Fiobuoy for pre-deployment programming via a custom direct-contact infra-red cable.¹⁰ During retrieval, the transducer is lowered over the side of the vessel or a custom pole mount version is available which allows the vessel to be underway (up to 8 knots) while transmitting commands to a submerged Fiobuoy. Acoustic communications employ a broadband spread spectrum encoding technology capable of transmitting and receiving data from distances up to 500 m (1640 ft).

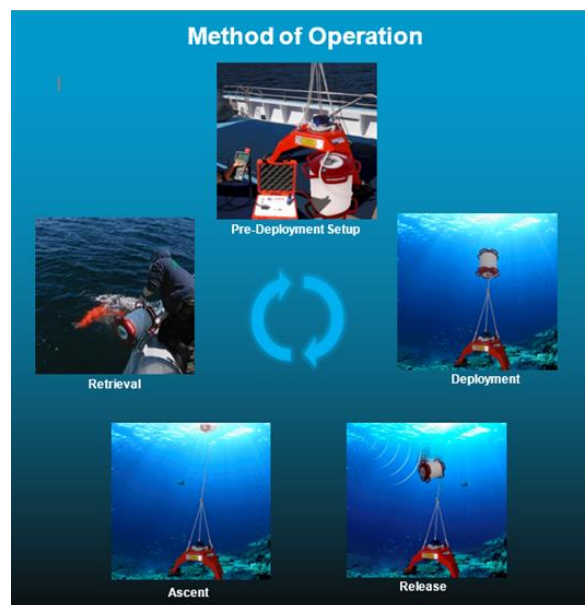


Figure 11. Five Fiobuoy Phases: pre-deployment setup, deployment, release, ascent, and retrieval.

¹⁰ Future models will replace this cable with wireless technology to improve system functionality.

Gear Location Marking

Gear location marking support for the Fiobuoy is currently under development.¹¹ To provide this capability, the Fiobuoy would be used in conjunction with other gear marking technologies available to the project, either Ropeless Fisher from Desert Star Systems or Trap Tracker from EdgeTech. These gear marking applications provide information on gear type, deployment location, deployment date and time, ownership,¹² and other pertinent information to avoid gear conflicts with other ocean users and support management/enforcement.

Guardian Ropeless System

The Guardian is a line management and retrieval system that was designed to be used with existing trap gear and hauling systems. The system generally consists of an open-topped mesh construction that secures the line and buoys on the top of a trap held in a closed position by a galvanic release link.¹³

Release Mechanism

Vessels will test the Guardian system paired with galvanic timed releases (GTRs) that corrode over a predetermined time in seawater (Figure 12). GTRs are low-cost and reliable releases that allow fishermen to choose when their buoys surface with reasonable accuracy. Longsoaker Fishing Systems currently manufactures over a dozen different duration GTRs ranging from eight hours to four days. The durations to be tested (ranging from 1 to 3.5 days) will be selected by participating vessels, in coordination with the Foundation. GTRs are not prone to failure, and they corrode at consistent rates. Recent tests showed that five, 24-hour releases all parted within a half hour time span.



Figure 12. Galvanic timed releases.

Line Handling

We propose two options for line handling that would be selected based on the preference of participating vessels: the Guardian crab pot retrofit and the Guardian trawl-groundline sled. The Guardian crab pot retrofit is designed to be used with single trap fishing. The sled version is designed to be used in deep water on one or both ends of a multi-trap trawl, but for the purposes of this EFP it would be used with single traps (Figure 13).

¹¹ Gear marking map overlay software will be available in future releases of the Fiobuoy system.

¹² Encryption will be used to keep owner data private and accessible only to the owner and law enforcement.

¹³ The Guardian is also compatible with other release mechanisms, such as acoustic or mechanical release devices.



Figure 13. Guardian crab pot retrofit (left) and Guardian sled with 50 fathoms of line (right).

The Guardian crab pot retrofit secures the line coil and buoys to the top of a trap using an open-topped mesh that is sewn to the top of the trap. As a backup, biodegradable twine or a secondary GTR would be added to ensure release if there is an unexpected failure. The Guardian sled operates in the same way as the crab pot retrofit except that the line and buoys are contained within a separate vessel with the mesh construction sewn around the perimeter. The top mesh perimeter hoop can be raised and lowered to adjust for different quantities of buoy line. A drawstring is inserted through loops on the opposite edge. The drawstring is then pulled tight so that the netting purses at the center. This secures the line and buoys until they are released to the surface after the galvanic release corrodes. The buoy line is the same type that is currently used by fishermen. Traditional foam buoys need to be replaced with hard buoys for operations in greater than 100 feet of water depth. Various sizes of hard and polyform buoys are available and have been tested.

In operation, the buoy line is free spooled or coiled into a tub directly from the hydraulic block with the buoys set to the side. The tub is then inverted, and the coiled line is placed into the mesh on the top of the trap or empty Guardian sled. The drawstring is pulled tight to contain the line and buoys securely within the mesh construction. The Guardian is then refitted with a new GTR and redeployed.

Gear Location Marking

Gear location marking for the Guardian would be supported by other gear marking technologies available to the project, either Ropeless Fisher from Desert Star Systems or Trap Tracker from EdgeTech. These gear marking applications provide information on gear type, deployment location, deployment date and time, ownership,¹⁴ and other pertinent information to avoid gear conflicts with other ocean users and support management/enforcement.

¹⁴ Encryption will be used to keep owner data private and accessible only to the owner and law enforcement.

Gear Recovery Plan

Vessels will employ the following methods to retrieve and recover gear (listed in order of sequence of operation).

- Primary release – Pop-up systems will be activated using their primary release mechanism, either via timed release (e.g., galvanic links or mechanical release) or acoustic signal from the fishing vessel.
- Secondary release – If the primary release fails, gear is recovered using a secondary or backup release mechanism. The Fiobuoy includes a backup mechanism that will activate the release at a preset date and time. The Desert Star Systems ARC-1XD will use a GTR installed on the release cord. The Guardian Ropeless System will use biodegradable twine or a secondary GTR as a backup release mechanism. EdgeTech gear would be deployed with a Resqunit programmable reserve buoy, which is specifically designed to prevent lost gear. Additionally, a Resqunit buoy would be deployed with all gear types during Stage 1 testing.
- Grappling – If the pop-up system does not deploy to the surface via its primary and secondary release mechanisms, recovery will be attempted by means of grappling.

Amount of gear

Vessels would trial up to 20 acoustic or timed-release devices attached or mounted onto single traps. Since vessels will be testing one gear at a time, we expect no more than 50 pop-up devices and 50 traps to be deployed at any given time.

Electronic Monitoring

As mentioned above, participating vessels will be equipped with a Pelagic Data Systems vessel tracking device to track their location and movement during EFP activities. The tracking system would remain active throughout the duration of the project.

Enforcement

Enforcement will have the ability to locate and monitor gear deployments using available GPS-based gear marking systems described above. These gear marking applications provide information on gear type, deployment location, deployment date and time, ownership, and other information that can be used to support enforcement/management requirements under the EFP. We propose the following enforcement procedures:

- Pre-testing inspection of gear – This would allow gear to be inspected dockside to ensure traps and gear configurations meet enforcement requirements. Vessels would request inspection at least 24 hours before commencing EFP fishing activities. If CDFW does not arrange an inspection after notification by the vessel, the inspection requirement is waived.

- At-sea inspection of gear – This would allow gear to be inspected for compliance while vessels are engaged in EFP activities. Procedures will vary based on the type of systems tested.
 - On-demand acoustic systems – Inspection of gear can be carried out by contacting a vessel to schedule an inspection on its next trip. Vessels would be required to provide access to and a means for inspections, including raising the gear to the surface to make it available for law enforcement upon request. This will allow CDFW to conduct compliance checks of the gear without having the need for specialized equipment and expertise to retrieve and redeploy on-demand gear. If requested, CDFW personnel can be trained to operate the on-demand technologies, including how to locate, retrieve, and redeploy gear using gear retrieval and marking systems.
 - Timed-release systems – Deployed gear can be inspected when it is scheduled to surface, which is documented in the gear location marking application and stored in a secure, enforcement-accessible cloud database. CDFW personnel will have access to all data including trap locations, scheduled releases, and operator information to support the planning of inspections. CDFW may also communicate and coordinate with vessels to schedule inspections at sea. The Guardian is activated by a time-release mechanism and does not require specialized equipment to retrieve and redeploy the gear.

Additional measures

Vessels propose to take the following additional measures to reduce protected species interactions, minimize gear conflicts, and support monitoring and enforcement. We welcome input from CDFW on additional measures and precautions that should be taken.

- Vessels will retrieve gear as quickly as possible after it surfaces to minimize time vertical lines are in the water column. Timed-release systems would be retrieved as soon as possible (within the same day) after the buoys surface, weather conditions permitting. Smart Buoys¹⁵ may also be used to alert fishermen when pop-up gear surfaces, whether planned or unplanned, allowing recovery to occur as soon as possible. Because a limited number of Smart Buoys is available to the project, their use will be prioritized for the testing of timed-release systems.
- Vessels will follow the current version of the best practices guide for minimizing marine life entanglement.¹⁶
- If requested by CDFW, vessels will move their gear in response to gear conflicts and/or increased entanglement risk.

¹⁵ *Blue Ocean Gear*, <https://www.blueoceangear.com>.

¹⁶ Best Practices Guide for Minimizing Marine Life Entanglement, <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=195428&inline>

- Vessels will use unique markings on vertical lines and groundlines to help identify the source of any entanglements that occur to ensure they are managed appropriately (i.e., not count toward the RAMP impact score for the commercial Dungeness crab fishery. See requested exemption from the RAMP regulations).
- Vessels will be clearly marked “EFP vessel” or fly a unique flag for enforcement recognition.

7. The location and timing of the project. The description must include trip specifications, such as fishing depth, anticipated number of trips, expected trip duration, and estimated number of hauls and average soak time (for fixed gear) or estimated number of tows/sets to be made per day, and estimated duration and speed per tow (for mobile gear). For project vessels listed in [Section F.](#) of this document, the description must also identify any fishing activity that is expected to occur on the same trip as the project for purposes other than those provided by the EFP (e.g., fishing before and/or after the EFP activities).

Location and timing

Testing activities under this EFP will occur within the Central Management Area offshore of Bodega Bay, San Francisco, Half Moon Bay, and Monterey Bay. EFP activities may occur at any time throughout the year but are expected to largely occur from April to October. The timing and locations of activities will be left to the discretion of participating vessels, in coordination with the Foundation.

Number of vessels

The EFP would authorize up to five vessels to test pop-up gear using their existing traps. Each vessel will evaluate up to four different systems under normal commercial fishing operations.

Number of trips

We anticipate that there will be a maximum of 75 fishing trips for all vessels combined.

Fishing depth

The depth of trap deployments is expected to be between 30 to 300 ft (5 to 50 fathoms).

Trip duration/soak time

Vessels would deploy and retrieve traps on single-day trips after a soak time of 1 to 4 days.

Number of hauls

The total number hauls will depend on the number of systems tested and units deployed. We estimate that approximately 500 deployment/retrieval cycles will be achieved for all systems combined.

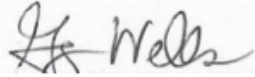
F. PROJECT VESSELS (IF APPLICABLE)

Provide vessel information. Using the table below, complete a separate entry for each project vessel to be authorized by the EFP. For any vessel that will be used in commercial fishing activity related to the permit, the commercial boat registration number issued pursuant to [FGC Section 7881](#) is required. For any vessel that will not be used in commercial fishing activity related to the permit, the commercial boat registration number issued pursuant to [FGC Section 7881](#) or a copy of the United States Coast Guard (USCG) Certificate of Documentation is required. If there is no Certificate of Documentation for the vessel, a copy of the vessel's state registration is required.

Vessel Name	F/V Ronna Lynn
Boat Registration Number or Documentation	[Boat Registration Number or Documentation Omitted]
Owner Name	Marc Alley
Owner Address	[Owner Address Omitted]
Owner Telephone Number	[Owner Telephone Number Omitted]
Operator Name	Marc Alley
Operator Address	[Operator Address Omitted]
Operator Telephone Number	[Operator Telephone Number Omitted]

Vessel Name	F/V Areona
Boat Registration Number or Documentation	[Boat Registration Number or Documentation Omitted]
Owner Name	Khevin Mellegers
Owner Address	[Owner Address Omitted]
Owner Telephone Number	[Owner Telephone Number Omitted]
Operator Name	Khevin Mellegers
Operator Address	[Operator Address Omitted]
Operator Telephone Number	[Operator Telephone Number Omitted]

G. SIGNATURE



2/2/2023

Signature of Applicant

Date

H. APPLICATION FEE PAYMENT

Please see [CDFW's EFP Program page](#) for further information.