PUGET BUOY PILOT PROJECT

PROJECT TITLE: Puget Buoy Pilot Project

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	Dylan Diefendorf
Title and Affiliation	Co-Pi - CEO & Founder of Puget Buoy
Mailing Address	[redacted]
Email Address	[redacted]
Telephone Number	[redacted]
GOID	[redacted]

2. Entity Administrator (if applicable)

Name	
Title and Affiliation	
Mailing Address	
Email Address	
Telephone Number	
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.

3. Authorized Agent(s) (if applicable)

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

Name	Kim Sawicki
Title and Affiliation	Co-Pi - President, Sustainable Seas Technology
Mailing Address	[redacted]
Email Address	[redacted]
Telephone Number	[redacted]

Name	Steve Melz
Title and Affiliation	Commercial Fishing Captain
Mailing Address	[redacted]
Email Address	[redacted]
Telephone Number	[redacted]
CFL Number	[redacted]

Name	Carl Wakefield
Title and Affiliation	Commercial Fishing Captain
Mailing Address	[redacted]
Email Address	[redacted]
Telephone Number	[redacted]
CFL Number	[redacted]

Name	Don Marshall
Title and Affiliation	Commercial Fishing Captain
Mailing Address	[redacted]
Email Address	[redacted]
Telephone Number	[redacted]
CFL Number	[redacted]

Name	Brand Little
Title and Affiliation	Commercial Fishing Captain
Mailing Address	[redacted]
Email Address	[redacted]
Telephone Number	[redacted]
CFL Number	[redacted]

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.

This proposed project's goals are consistent with the policies of the Fish and Game Code (FGC) Section 7050. Specifically Priority 1,2, and 7 which cover discovering new method on how to conserve the health and diversity of marine resources, encore activities that promote new sustainable fishing practices, and involving industry stakeholders such as sport and commercial fishers, marine conservation organizations, marine scientists, and local governments that bring about new resource management decisions.

Our objective is to certify Puget Buoy for authorized commercial use in California State Fisheries by CDFW fishery managers through their Risk Assessment & Mitigation Program (RAMP). Once certified, the Puget Buoy's proven capabilities at reducing bycatch in a commercially demanding setting will encourage the voluntary adoption across the California commercial fishing fleet. Additionally, the comprehensive results from this project and the impacts of the implementation will provide stakeholders with compelling information for addressing whale entanglement challenges across North America and the world.

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.

An exemption from Fish and Game Code Section 9005 (requirement for crab traps to be marked with a surface buoy)

No marker buoy on the ocean surface marking the gear. Other than that this, no other modifications to fishing gear is needed to operate the Puget Buoy. We should be authorized for an exemption to this rule given the measures our product uses to ensure CDFW enforcement practices to retrieve and inspect the proposed experimental fishing gear. (Please see Section E.6).

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.

Task 1.1	Construct the pop-up gear that will be used for commercial testing	Dylan Diefendorf
Task 1.2	Package and transport the units to each vessel	Dylan Diefendorf
Task 2.1	Rigging Gear & Practice Orientation to Crews	Dylan Diefendorf & Kim Sawicki
Task 2.2	Conduct 2,125 tests of the pop-up gear from February 9th to June 1st, 2023	Steve Melz, Brand Little, Carl Wakefeild, Don Marshall
Task 3	Collect Data - Recording Results and submitting results for analysis (2/23 to 5/23)	Steve Melz, Brand Little, Carl Wakefeild, Don Marshall
Task 4	Survey commercial testing crews (2/23 to 5/23)	Kim Sawicki
Task 5	Compiling of Results (Summary Paper) (6/23 to 8/23)	Kim Sawicki
Task 6.1	Distribution of results (8/22 to 1/24)	Dylan Diefendorf & Kim Sawicki

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

Dylan Diefendorf

Dylan is the founder of Puget Buoy and the lead product developer. I have a diverse background in start-ups and rapid prototyping, along with a passion for the conservation of marine habitats lends itself well to solving the diverse set of environmental and economic challenges that face maritime economies in North America and around the world. Under my leadership at Puget Buoy, we have raised over $300,000 in funding to develop this deeply needed solution. My team has won multiple business, technology, and environmental innovation awards.

Kim Sawicki

I am the president and founder of Sustainable Seas Technology 501 (c) (3) and am also an independently funded PhD student studying conservation engineering under Dr. Pingguo He's supervision at the University of Massachusetts - Dartmouth. I possess extensive experience testing pot fishing gear alternatives as well as in developing the data collection standard for NOAA gear research groups in the Northeast and Southeast. I have authored comprehensive documents detailing these systems for the Atlantic Large Whale Take Reduction Team as well as the "Ropeless is Real" report, a technical guide to "ropeless" fishing devices. I have worked with and

tested nearly all the available ropeless devices with fishermen globally and am recognized as a leading expert on the subject.

Steve Melz
As president of S & J Fisheries, I have been running a commercial fishing vessel since 1986. I started at the age of 18 and the ocean has provided a living for me since then. I have specialized in Dungeness crab since 1991 and worked at perfecting gear innovation relentlessly and have offered both my vessels as platforms to test Puget Buoy's innovation.

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).

This pilot project will be using a structured data collection process originally established by Kim Sawicki which has been used as the standard data gathering structure across all experimental ropeless fishing gear testing. Data will be collected by each participating vessel captain on the smart tablet provided at the beginning of the project. The data recorded will be automatically uploaded to a cloud online database hosted by the Co-Pi's Dylan Diefendorf and Puget Buoy & Sustainable Seas Technology - Page 8, Kim Sawicki. The data will be compiled in real time and will be under continuous review throughout the duration of testing.

4. Train all persons operating under the permit.

In January 2023, Co-Pi Dylan Diefendorf will fly to California from Seattle over a 10 day period of time to educate all four testing crews on the following topics: Using the pop-up gear properly, safe gear testing conditions out in the fishery, installing spooler to deck of the vessel, rigging equipment (Configuring the existing crab pot and line to the Puget Buoy), proper testing procedures & recording data, submitting data online to be compiled, troubleshooting future issues and support avenues, proper storage of equipment when gear is stored, conduct practice dry-runs of deploying the gear in the fishery, recording data, submitting data, and troubleshooting potential issues.

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

Our team will share deployment and recovery data with CDFW, including CDFW's Law Enforcement Division through a data collection app in near-real time, that offers data downloads in csv format. Examples of the data included drop and recovery coordinates, start and end times for soaking, catchability of control traps and

experimental traps, and photos of gear configurations. Please see attached csv file of complete Additionally, raw deck recordings of deployments will be available upon request for viewing, when available. Additionally, we will be providing advanced notice of dates and locations of all Puget Buoy testing. Puget Buoy is a member of the RMW Hub project, which will assign logins and passwords for applicable CDFW stakeholders to view deployments of all pop-up gear deployed through the Puget Buoy gear marking application as well as the other RMW member applications in California state waters.

We will be providing annual reports and a final report to CDFW detailing our findings and project progress.

We plan on sharing our real-time data of active experimental fishing gear (Puget Buoy) locations with CDFW staff can locate, retrieve, and inspect the proposed gear as shown in the last part of Section E.6 of this document.

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

We plan on sharing our real-time data of active experimental fishing gear (Puget Buoy) locations with CDFW staff can locate, retrieve, and inspect the proposed gear as shown in the last part of Section E.6 of this document.

Data this Pilot Project will collect for Puget Buoy gear tested:

- **Location Data**
    - Deployment locations with GPS coordinates
    - Recovery locations with GPS coordinates
    - Distance between the deployment and recovery locations
- **Soak Timing Data**
    - Deployment date and time
    - Recovery date and time
    - The total soak time duration
- **Testing Depth Data**
    - For each Puget Buoy tested, the depth that the gear is deployed in will be recorded.
- **Catch Rate Data**
    - Target species catch quantities per-pot
    - Non-Target catch quantities per-pot
- **Operating Speed servicing the gear**
    - A deck camera will record the total duration of time that the puget buoy is on deck and interacted with by the crew to ensure accountability and transparency of testing procedures.
- **Consumer Feedback**
    - Qualitative surveys will assess how participating crabbers view Puget Buoy and will be issued once a month. Feedback from the participants of the study will be important when performing public outreach during and after the study has concluded. Questions include: What they like

about using Puget Buoy Gear, What they dislike about using Puget Buoy Gear,How would they suggest Puget Buoy improve on the Puget Buoy Gear, and Overall rating out of 10 and compare against traditional crabbing gear.

- **Recovery Rate**
  - Measures the overall reliability of our system, as well as the amount of crabbing gear lost during testing. Reliability will be measured by the average success rate of the Puget Buoy from all tests conducted during field testing. Specifically, we will measure based on the number of devices that failed to release versus successful recoveries. Recovery Rate will be recorded by the captain in an Excel Spreadsheet.
- **Fixed Line Duration**
  - The amount of time the fixed line is in the water column (extending from the crab pot to the surface) impacts the potential for whale entanglements and gear efficiency. We will record the average time between the Puget Buoy returning to the ocean surface and when the gear is pulled out of the water to make a comparison to traditional gear fixed line duration. This will be recorded by the captain in a provided spreadsheet.

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:

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.

Month #	Month Name	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6
		Building Equipment	Pilot Testing	Recording Data	Survey Testers	Compliling Results	Eductation & Outreach
Key Person		Diefendorf	Diefendorf	Diefendorf	Diefendorf	Sawicki	Sawicki
1	August/2022						
2	September/2022						
3	October/2022						
4	November/2022						
5	December/2022						
6	January/2023						
7	February/2023						
8	March/2023						
9	April/2023						
10	May/2023						
11	June/2023						
12	July/2023						
13	August/2023						
14	September/2023						
15	October/2023						
16	November/2023						
17	December/2023						
18	January/2024						

The goal for this project is to provide 125 Puget Buoy units to 4 commercial Dungeness crab fishing vessels in California to test them throughout the fishing season starting in February. Each vessel will receive 25 or 50 units and service them once every 96 hours for 17 weeks (Fish and Game Code Section 9004). This project will conduct a total of 2,125 tests from February 9th to June 1st, 2023. The PI's will be closely coordinating with each fishing vessel crew to monitor their feedback from operating the gear Puget Buoy & Sustainable Seas Technology - Page 6 and then determine the gear's readiness for full commercial use and certification through California's RAMP Program for certifying new alternative fishing innovations in commercial state fisheries.

Task 2.1 - Rigging Gear & Practice Orientation to Crews

In January 2023, Co-Pi Dylan Diefendorf will fly to California from Seattle over a 10 day period of time to educate all four testing crews on the following topics: Using the pop-up gear properly, Safe gear testing conditions out in the fishery, Installing

Spooler to deck of the vessel, Rigging equipment (Configuring the existing crab pot and line to the Puget Buoy), Proper testing procedures & recording data,Submitting data online to be compiled, Troubleshooting future issues and support avenues, Proper storage of equipment when gear is stored, Conduct practice dry-runs of deploying the gear in the fishery, recording data, submitting data, and troubleshooting potential issues.

Task 2.2 - Conduct 2,125 tests of the pop-up gear from February 9th to June 1st, 2023

Each commercial fisherman will test the set of 25 Puget Buoy's once a week for 17 weeks. Each test will consist of one full "rotation" of each set of 25 pots in close geographic proximity. One rotation consists of the full deployment and recovery of crabbing gear, including wireless programming to schedule a release time. Total number of tests may vary due to weather.

Task 3 - Collect Data - Recording Results and submitting results for analysis (2/23 to 5/23)

This pilot project will be using a structured data collection process originally established by Kim Sawicki which has been used as the standard data gathering structure across all experimental ropeless fishing gear testing. Data will be collected by each participating vessel captain on the smart tablet provided at the beginning of the project. The data recorded will be automatically uploaded to a cloud online database hosted by the Co-Pi's Dylan Diefendorf and Puget Buoy & Sustainable Seas Technology - Page 8 Kim Sawicki. The data will be compiled in real time and will be under continuous review throughout the duration of testing.

Task 4 - Survey commercial testing crews (2/23 to 5/23)

In addition to having vessel captains collect data, Co-Pi Dylan Diefendorf will meet with each participant if crew over Zoom.com once a month for four months to conduct A structured interview questionnaire to record their qualitative feedback on operating the Puget Buoys in a commercial setting. At the end of the four months, a final report will be compiled summarizing the feedback and overall rating from the participating numbers on the readiness and capabilities of the equipment on their operational perspective. This information will be vital in our efforts to distribute the results and encourage future commercial fisherman to voluntarily participate in using this year to address by catch and will entanglement challenges in the fishery. (this final report will be incorporated into the primary report findings that will be compiled and drafted by Co-Pi Kim Sawicki to be submitted to CDFW, NOAA, and are there organizations that would benefit from receiving it. In addition to the report, the proposed changes will be implemented to the Puget Buoy before providing commercial fisherman in a broad official capacity to adopt the gear on their vessels. 1. Conduct four monthly zoom meetings with each captain and crew for: (Structured Interview Questionnaire) covering the following topics: Feedback on the challenges using the gear, gear functionality, and challenges they encountered using the gear. 2. Conduct a final questionnaire interview with all participating commercial fishermen members on their comprehensive experience using pop-up gear.

Task 5 - Compiling of Results (Summary Paper) (6/23 to 8/23)

After June 1, 2023, when the pilot testing has concluded and all data has been submitted for review, the date will be compiled and a summary report will be drafted by Co-Pi Kim Sawicki covering these topics: Pop-up gear performance, Catch rate of gear,

Weather conditions on the ocean, Forecasting potential economic and environmental benefits, and Conduct a final report summarizing all feedback from commercial fishermen.

Task 6 - Education and Outreach (8/22 to 1/24)

Continued outreach events will occur throughout the project to share findings and gather information vital to the success of the project. Workshops like those Ms. Sawicki hosts globally will be organized with researcher partners and stakeholders to discuss results and gather more information on applicability and functionality directly from US fixed gear fishers. Promotional and outreach materials such as fact sheets, videos, and photos regarding the use of these strategies and gear configurations will be produced and distributed and made available for industry partners, managers, fishers, and consumers. The production of video and still photography materials will be completed for both the educational needs of fishers, the public, and stakeholders and be shared on the Sustainable Seas Technology Online Open Access Research Compendium.

Task 6.1 - Distribution of results (8/22 to 1/24)

In August 2023 submitted results to CDFW for commercial fishing authorization certification for California State Fisheries Risk Assessment Mitigation Program (RAMP). The results will be disseminated through close partnerships with Quileute Tribe, Washington, Oregon, and California DFW and our fishing industry partners on the West Coast. Puget Buoy & Sustainable Seas Technology - Page 10 The data from this research will be made available to the NOAA Fisheries Science Centers and Regional Offices, the Marine Mammal Commission, the Ropeless Consortium and other relevant bodies. The project effort and results will also be shared on the Sustainable Seas Technology Online Open Access Research Compendium. Results will also be presented at public meetings, trade shows such as the International Workboat Show, technical workshops such as the Sixth International Marine Debris Conference, and scientific conferences. Additionally, As we progress and achieve milestones throughout this project we will be continuously submitting press releases to online/print publications and journals such as Fishery Nation, gCaptain to promote The projects development and raise the profile of the project.

Data Collected

1. **Recovery Rate:** Measures the overall reliability of our system, as well as the amount of crabbing gear lost during testing. Reliability will be measured by the average success rate of the Puget Buoy from all tests conducted during field testing. Specifically, we will measure based on the number of devices that failed to release versus successful recoveries. Recovery Rate will be recorded by the captain in an Excel Spreadsheet.
2. **Operating Speed:** Operating speed of the Puget Buoy will be measured by the total time it takes to service and reset the crab pot with the Puget Buoy. Operating speed will be compared against conventional crab pot speeds using a Go-Pro on deck.
3. **Fixed Line Duration:** The amount of time the fixed line is in the water column (extending from the crab pot to the surface) impacts the potential for whale entanglements and gear efficiency. We will record the average time between the Puget Buoy returning to the ocean surface and when the gear is pulled out of the water to make a comparison to traditional gear fixed line duration. This will be recorded by the captain in a provided spreadsheet.

4. **Consumer Feedback:** Qualitative surveys will assess how participating crabbers view Puget Buoy and will be issued once a month. Feedback from the participants of the study will be important when performing public outreach during and after the study has concluded. Questions include: What they like about using Puget Buoy Gear, What they dislike about using Puget Buoy Gear,How would they suggest Puget Buoy improve on the Puget Buoy Gear, and Overall rating out of 10 and compare against traditional crabbing gear.
5. **Catch Rate:** The quantity of crab caught in crab pots with and without Puget Buoys will be recorded by the excel spreadsheet on the tablet provided to each commercial fishing crew.

Compensation: Participating commercial fishermen will be compensated on a monthly basis based on the number of trips to rotate the gear.

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 (*Metacarcinus magister)*	This will be hard to calculate given variations in location, vessel, and season. We anticipate catching a minimum of **3,188 crabs** over the 17 weeks of the project. (125 pots x 1.5 crabs per pot) x (17 times pots are emptied)	Crabs will be added to others commercially fished with conventional fishing gear.

We will be using 38's & 42's commercial Dungeness crab pots. No modifications will be made to the pots themselves and will be fully compliant with CDFW rules. Escape rings, and rot cords will be used and they are used on CDFW compliant fishing gear.

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.

Species Name	Latin	Proposed Use	Don Marshall F/V Northern Light	Brand Little F/V Pale Horse	Steve Melz F/V Sunrise	Carl Wakefeild F/V Little Vikki

Dungeness Crab	*Metacarcinus magister*	Retain and sell if caught during fishery season and if fisher holds permit. Otherwise release.	X	X	X	X
Rock Crab	*Cancer productus, Metacarcinus anthonyi, and Romaleon antennarium*	Retain and sell if caught during fishery season and if fisher holds permit. Otherwise release.	X	X	X	X
Rock Cod Black Rockfish	*Sebastes melanops*	Release	X	X	X	X
Rock Cod Copper Rockfish	*Sebastes caurinus*	Release	X	X	X	
Rock Cod Gopher Rockfish	*Sebastes carnatus*	Release	X	X	X	
Rock Cod Grass Rockfish	*Sebastes rastrelliger*	Release	X	X	X	
Rock Cod Greenspotted Rockfish	*Sebastes chlorostictus*	Release	X	X	X	
Rock Cod Rosy Rockfish	*Sebastes rosaceus*	Release	X	X	X	
Rock Cod Starry Rockfish	*Sebastes constellatus*	Release	X	X	X	
Rock Cod Vermilion Rockfish	*Sebastes miniatus*	Release	X	X	X	
Rock Cod Yelloweye Rockfish	*Sebastes ruberrimus*	Release	X	X	X	
Rock Cod Yellowtail Rockfish	*Sebastes flavidus*	Release	X	X	X	
Lingcod	*Ophiodon elongatus*	Release	X	X		X
Blue Rockfish	*Sebastes mystinus*	Release	X		X	X
Pacific Octopus	*Enteroctopus dofleini*	Release	X			X
Wolf-Eel	*Anarrhichthys ocellatus*	Release	X			X

Pacific Gaper Clam and Fat Gaper Clam	*Tresus nuttallii and Tresus capax*	Release				X
Pacific Razor Clam	*Siliqua patula*	Release				X
Pismo Clam	*Tivela stultorum*	Release				X
Starfish	*Asterias rubens*	Release				X

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.

Tracking the Vessel:

A Pelagic Data System Vessel Tracking System will be affixed to each of the four participating vessels and each Pelagic Data System will be specific to a given vessel.

In addition, due to the fact that none of the VMS systems on board any of the four participating vessels do not meet the RAMP regulations for the Dungeness Crab Fishery that require logging of vessel position at least once per minute, the Puget Buoy team has confirmed with Ian Kelmartin from CDFW that we can record each vessels GPS position once per minute using the tablet we will provide each of them for this project. The tablet will upload the vessel position data in real-time in areas with cellular reception. Additionally in the event where the vessel travels into an area without cellular reception, the tablet will continue to record the vessel's position data once per minute and simply store them in a cache on the tablet where it can then upload the stored data all at one time once the vessel returns to an area with reception.

All info for tracking vessel position data collection app in near-real time, that offers data downloads in csv format. Puget Buoy is a member of the RMW Hub project, which will assign logins and passwords for applicable CDFW stakeholders to view deployments of all pop-up gear deployed through the Puget Buoy gear marking application as well as the other RMW member applications in California state waters.

RMW Hub:

The Ropeless Manufacturer's Workgroup hub is an online interoperable virtual gear marking system that provides the backend system used by fishermen and regulators with a virtual map of gear marking locations of active fishing gear and in the process providing as much security around fishing data privacy as possible for active fishing gear. This project is currently funded by the Mammal Commission grant.

Tracking and/or Monitoring Catch:

Catch data will be recorded for each pot and will be manually recorded in a written log book by the commercial fishing captain on each vessel where it will be then declared at port and sent to the Puget Buoy team via email where the data will be compiled with the other data recorded for this pilot project.

Fishing Observers:

All participating vessels for this pilot project have confirmed that there is space on board to accommodate an observer if required/requested.

Observer Space Available:

F/V Little Vikki - Carl Wakefeild - yes

F/V Pale Horse - Brand Little - yes

F/V Northern Light - Don Marshall - yes

F/V Sunrise - Steve Melz - yes

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.

40%-88% Decrease in whale entanglements. Using whale entanglement data published by NOAA between 2015 - 2019, we project that the mass adoption of the Puget Buoy will reduce annual entanglements by 40%-88% on the West Coast (NOAA, 2020). Given that most entanglements on the West Coast involve humpback whales, we believe migrating populations of this species will benefit most.

85% Reduction in derelict crabbing gear marine debris. A recent study by the Washington Department of Fish and Wildlife found that over 14,235 crab pots are lost each year in the Puget Sound alone, most as a result of surface level factors, which our gear would minimize (Drinkwin, 2018). We project mass adoption of the Puget Buoy can reduce the build-up of derelict crabbing gear on the West Coast by 85%, complementing recovery efforts.

Gear Retrieval and Failsafes:

Describe the method by which gear may be retrieved in case of failure of the release mechanism.

The Puget Buoy has a built-in failsafe that monitors the amount of remaining power in the on-board power supply on the buoy. Regardless of time remaining on the left to resurfacing, the buoy will automatically use the remaining amount of power in the battery to activate the release mechanism to resurface the Puget Buoy.

In the unlikely event that the primary release mechanism fails and the Puget Buoy fails to resurface, our team has outlined three methods of recovering the gear depending on the conditions of the gear failure. However our team will pursue all three

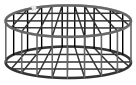
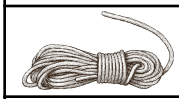
avenues if necessary to recover the gear. Due the shape and size of the Puget Buoy, the drift of the crabbing gear from its GPS marked drop location will be minimal allowing the gear to be located quickly if a failure is to occur. Commercial fishing captains involved with this project also participate in ghost gear recovery programs and are experienced at recovering gear from the seafloor.

Methods to recover in order:

1. Grappling
2. ROV/Drone
3. Divers
4. Small Drag Net

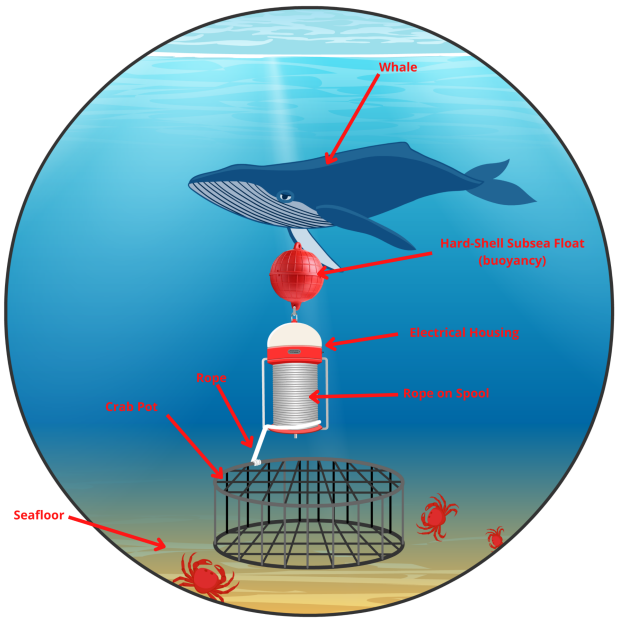
6. The type and amount of gear to be used, including gear specifications and design, and, if applicable, a description of any measures and/or devices that will be used to reduce bycatch. If the project involves gear modifications or other gear innovations, the description must include the means by which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

Type and amount of gear used

Image	Type of Gear Used	Description	QTY
	38” & 42” Commercial Grade Crab Pots	For catching Dungeness Crab Supplied by each participating f/v	125x
	⅜” - 350ft Line	Rope for spool on pop-up buoy	125x
	Puget Buoy	Time-Date Release Pop-Up Buoy	125x
	Hardshell Float	Buoyancy to pull the pop-up buoy to the surface	125x

Gear Specification and Design

Puget Buoy Information
Specifications



Buoy Trigger Type:	Timmer / Scheduled Release
Release Type:	Mechanical Latch
Estimated Lifespan:	10 Years
Depth:	1,900ft
Surfacing Speed:	5.6ft/s
Battery Life:	60 - 90 Days
Diameter:	10 in - 25.4 cm
Height:	24 in - 60.96 cm
Spool Volume:	400ft of 3/8" Line
	Larger Spool Sizes Available
Compatible With:	• Pot/Traps • Longlining • Aquaculture • Scientific Research

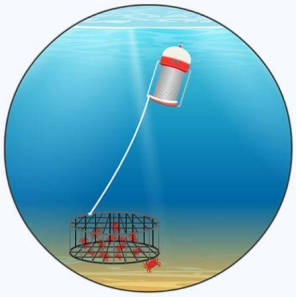
How It Works

1. Set

Before deployment, using the Puget Buoy App, select the future time the Puget Buoy will resurface from the seafloor. The Puget Buoy spool of line is in a locked in position.

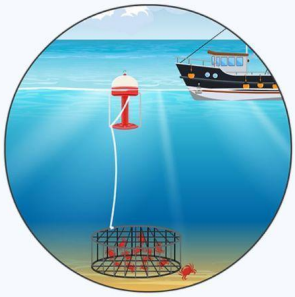
2. Wait

After the gear lands on the seafloor the Puget Buoy begins counting down to the designated resurfacing time. While the trap soaks, animals can swim without risk of entanglement.



3. Resurface

At the end of the soak period when the pre-set resurfacing time is reached, the spool on the Puget Buoy is unlocked and unspools as it races back to the surface at 5.6ft/s!



4. Reset

Once the Puget Buoy is the surface it is pulled on deck, respooled, the new resurfacing time is selected, and the crab pot is emptied, the gear is ready to be redeployed.

How It Works Video: https://www.youtube.com/watch?v=NaSJF71SDak

How It Works Shown in a Pool: https://www.youtube.com/watch?v=Rlpc9RijvRs

Testing Example: https://www.youtube.com/watch?v=wwcEejXgHDI

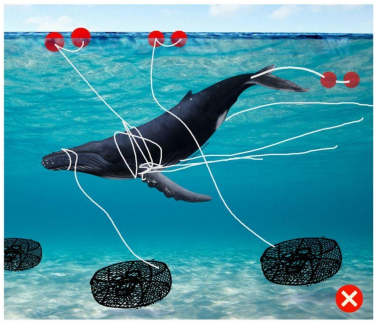
How we will prevent bycatch

The Puget Buoy is a compact device that secures the spool of line designed to keep the buoy and connecting line out of the water column and secured on the seafloor with the crab pot by a timed-release system eliminating any potential entanglement conflicts with non-target species such as whales, sea turtles, and dolphins!

Gear Modifications & CDFW enforcement

Gear Modifications:

For this EFP the only gear modifications being conducted is swapping the conventional surface float buoy with the Puget Buoy Pop-Up Buoy and storing the line on the spool housed on the Puget Buoy. (Please see the two images to the right of this paragraph). There are no modifications to the existing crab pots or the line used when operated with a Puget Buoy.



FISHING WITHOUT PUGET BUOY:
Gear loss and whale entanglements

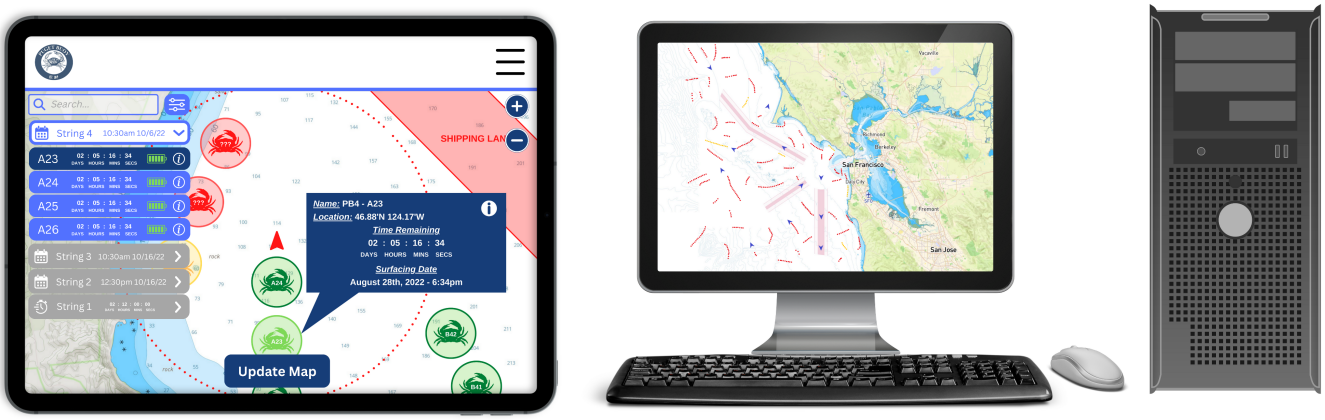
FISHING WITH PUGET BUOY:
Less gear loss, no whale entanglements

CDFW Enforcement:

The Puget Buoy App used to operate each Puget Buoy tested automatically uploads the location data and programmed surfacing time of each Puget Buoy deployed in the fishery. For enforcement purposes, CDFW will have access to the up-to-date data needed to locate the buoy's coordinates in the fishery and arrive shortly before the surfacing time programmed into the buoy to then retrieve and inspect the proposed gear once it surfaces. The Puget Buoy is a time-date release pop-up buoy which means when the buoy is on the seafloor, it is in an offline state counting down the seconds until the preset time is reached to then resurface where it can then be programmed with the new soak time. Speaking with DFW enforcement officers on the west coast and other industry stakeholders, our team is confident this method of enforcement and inspection of gear will satisfy the EFP requirements. (Please see the two images below for what data the CDFW managers will have access to for enforcement purposes.)

CDFW Enforcement will have the following information for all Puget Buoy actively in use in CA fisheries:

- Name of Owner the buoy is registered to
- Vessel Info
- Buoy Serial Number
- Buoy Soak Start & End Times
- GPS Coordinates of all Puget Buoys in the fishery
- Real-Time Data



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).

Start Date: February 9th, 2023

End Date: June 1st, 2023

Location:

Location will be determined closer to the start of the fishing season as the Puget Buoys will be tested alongside active conventional fishing gear operated by commercial fishermen. Our goal is to test the puget buoys in as close to regular commercial fishing conditions as possible to provide the best reflective data of real-world conditions. Please see table below in the section for coordinates and please see Section F for an enlarged map for each vessel.

Summary of Task:

Each commercial fisherman will test the set of 25 Puget Buoy's once a week for 17 weeks. Each test will consist of one full "rotation" of each set of 25 pots in close geographic proximity. One rotation consists of the full deployment and recovery of crabbing gear, including wireless programming to schedule a release time. Total number of tests may vary due to weather and fishing conditions.

Other Fishing Activities:

Regular commercial fishing activities (in fisheries such as Dungeness Crab, Black Cod, Sablefish, Rockfish, and Salmon) with conventional crab pot configurations will be conducted before and after on the same tips when the puget buoys are tested depending on the time of the year the testing will occur. . We chose the approach for testing the experimental gear because it minimizes any inconvenience on the participating commercial fishing crew testing the gear which promoted a broader group

of participation in this pilot project.

Trip Specifications:

Fishing Depth:

- 100ft to 300ft (Anticipated depth and actual depth during all testing will be shared with CDFW, including CDFW's Law Enforcement Division.

Number of Trips for each vessel:

- 18 trips (1st Trip to drop the gear, 2nd to the 17th trip to cycle through the gear, and the 18th trip to recover and return the gear.)

Expected Trip Durations:

- The duration of each trip is anticipated to be within 6 and 24 hours. Each trip will primarily comprise of regular permitted commercial fishing for dungeness crab in the California State fishery with about 45-60 min of each trip focusing on servicing through the gear using Puget Buoys.

Estimated Number of Hauls:

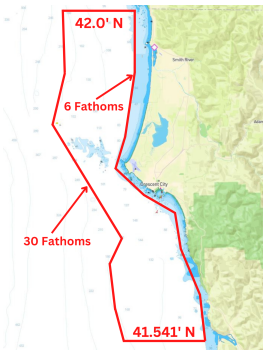
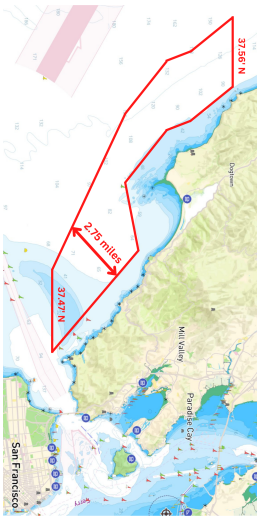
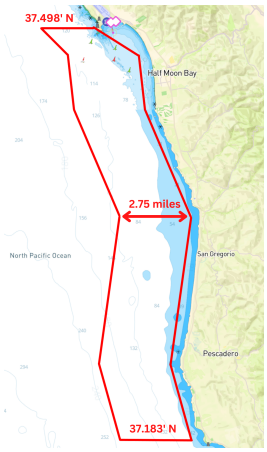
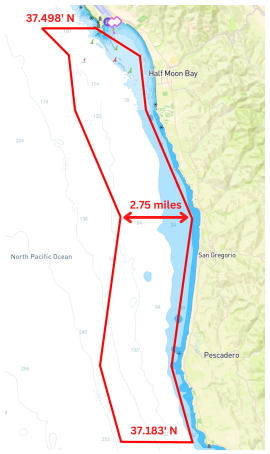
- 2,125 hauls total divided among the four commercial fishing vessels participating in this pilot project.
- Each vessel will haul the Puget Buoys 375 times (25 Puget buoys hauled 17 times) with the exception of Carl Wakefeils's vessel the F/V Little Vikki which will haul the Puget Buoys 850 times (50 Puget Buoys hauled 17 times.)

Average Soak Time:

- Anticipated soak time for each buoy to be 96 hours.

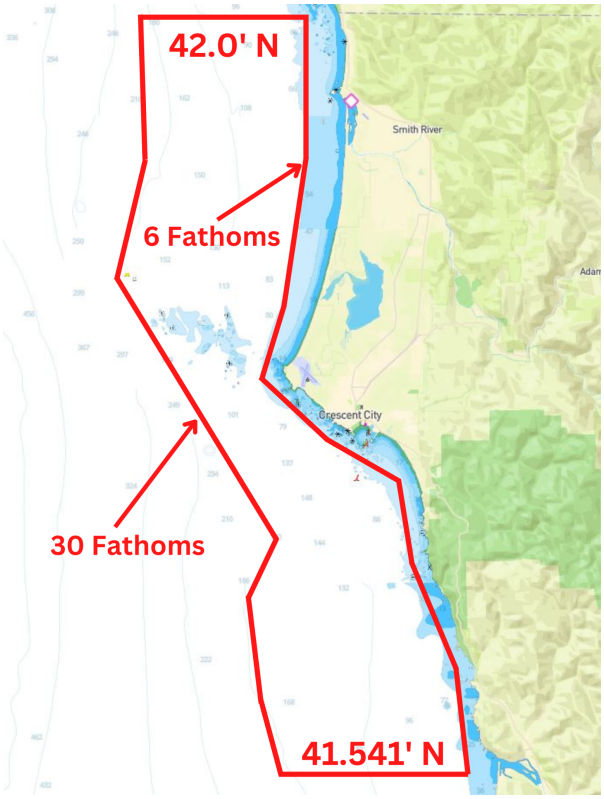
Observer Space Available:
F/V Stormy II - Carl Wakefeild - yes
F/V Pale Horse - Brand Little - yes
F/V Northern Light - Don Marshall - yes
F/V Sunrise - Steve Melz - yes

Captain	**Carl Wakefeild**	**Brand Little**	**Don Marshall**	**Steve Melz**
Vessel	**F/V Little Vikki**	**F/V Pale Horse**	**F/V Northern Light**	**F/V Sunrise**
Home Port	Crescent City Del Norte County CA	San Francisco Bay San Francisco County CA	Half Moon Bay San Mateo County CA	Half Moon Bay San Mateo County CA
Anticipated Hauls	850 hauls (50 PB-4's x 17 hauls)	375 hauls (25 PB-4's x 17 hauls)	375 hauls (25 PB-4's x 17 hauls)	375 hauls (25 PB-4's x 17 hauls)
Trip Duration	12 to 15 hours	24 to 48 hours	24 to 48 hours	24 to 48 hours
Fishing Depth Range	6 - 30 fathoms	10 - 50 fathoms	10 - 50 fathoms	6 - 30 fathoms
Anticipated Locations	**Fishing Zone 1** **Latitudes:** 42.000' N (Oregon Border) to 41.541' N (Klamath River) **Longitudes:**	**Fishing Zone 3** **Latitudes:** 37.56' N (Double Point) to 37.47' N (San Francisco) **Longitudes:**	**Fishing Zone 3** **Latitudes:** 37.498' N (Half Moon Bay) to 37.183' N (Pigeons Point) **Longitudes:**	**Fishing Zone 3** **Latitudes:** 37.498' N (Half Moon Bay) to 37.183' N (Pigeons Point) **Longitudes:**

Map	6 to 30 fathoms depth 	¼ mi to 3 mi from shore 	¼ mi to 3 mi from shore 	¼ mi to 3 mi from shore 
Other Activities	Commercial Dungeness Crab Fishing	Commercial Dungeness Crab Fishing Commercial Black Cod	Commercial Dungeness Crab Fishing Commercial Black Cod Commercial Sablefish Commercial Rockfish	**February to April:** Commercial Dungeness Crab Fishing **May:** Salmon

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 Little Vikki
Boat Registration Number or Documentation	[redacted]
Owner Name	John Beardon
Owner Address	[redacted]
Owner Telephone Number	[redacted]
Operator Name	Carl Wakefield
Operator Address	[redacted]
Operator Telephone Number	[redacted]

Important Note: John Beardon is the owner of the F/V Little Vikki but is not participating in any EPF activities. I have confirmed with Marina Som from CDFW about this. The image below is the email capture confirming this fact.

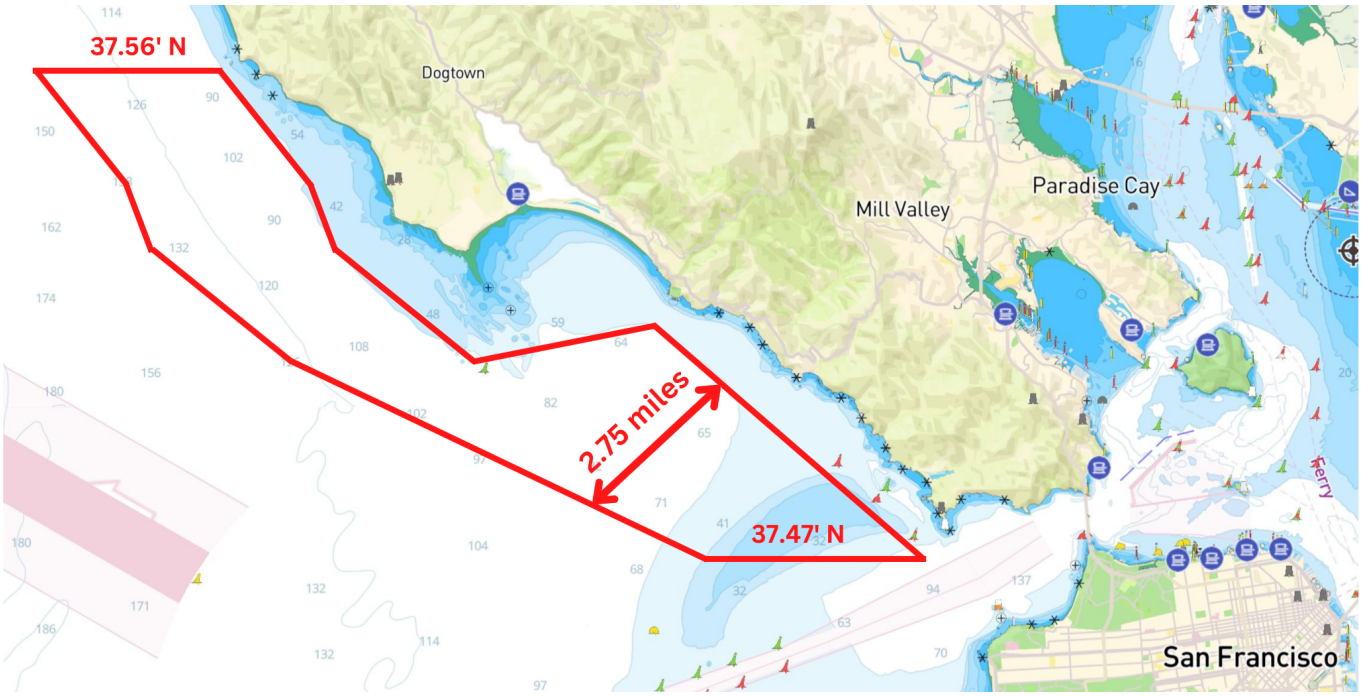

Wildlife Experimental Fishing Permit Program
to me, Ian@Wildlife

Nov 3, 2022, 2:42 PM (1 day ago)

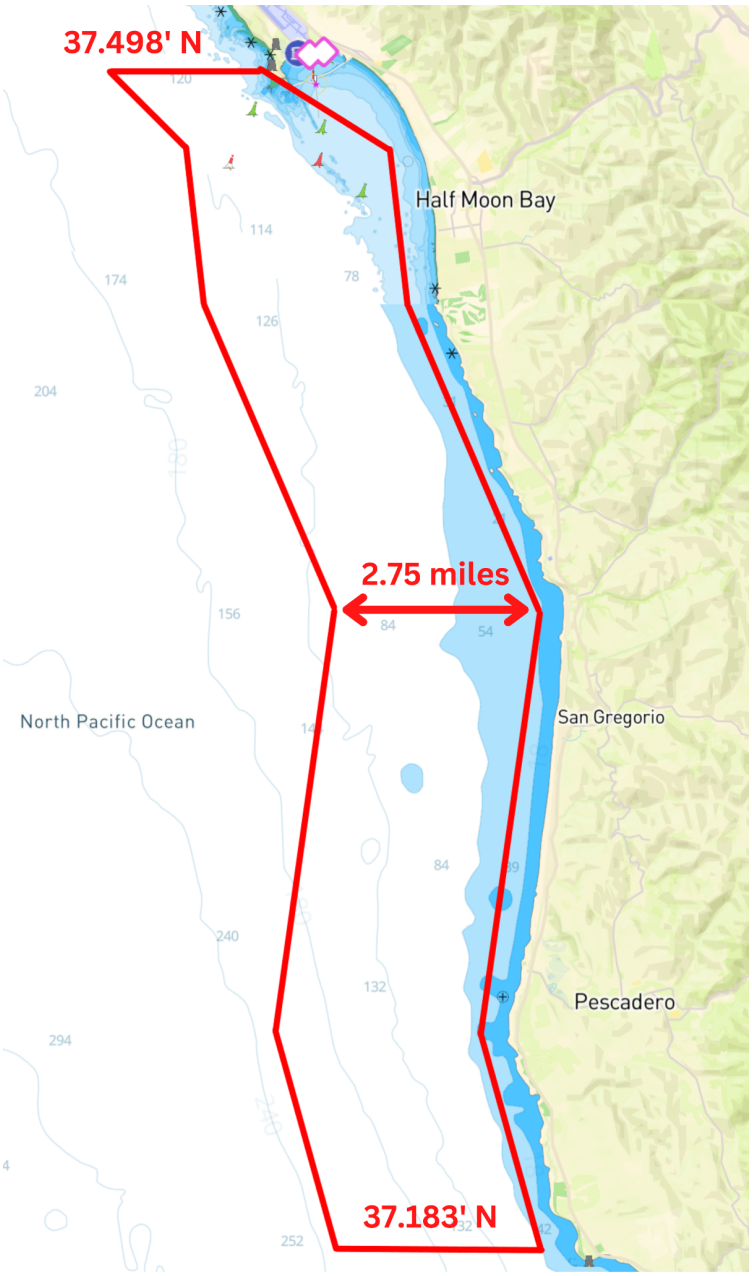
Hello Dylan,

This email is to follow-up on your question [redacted] The EFP may proceed and use Mr. Beardon's vessels [redacted]

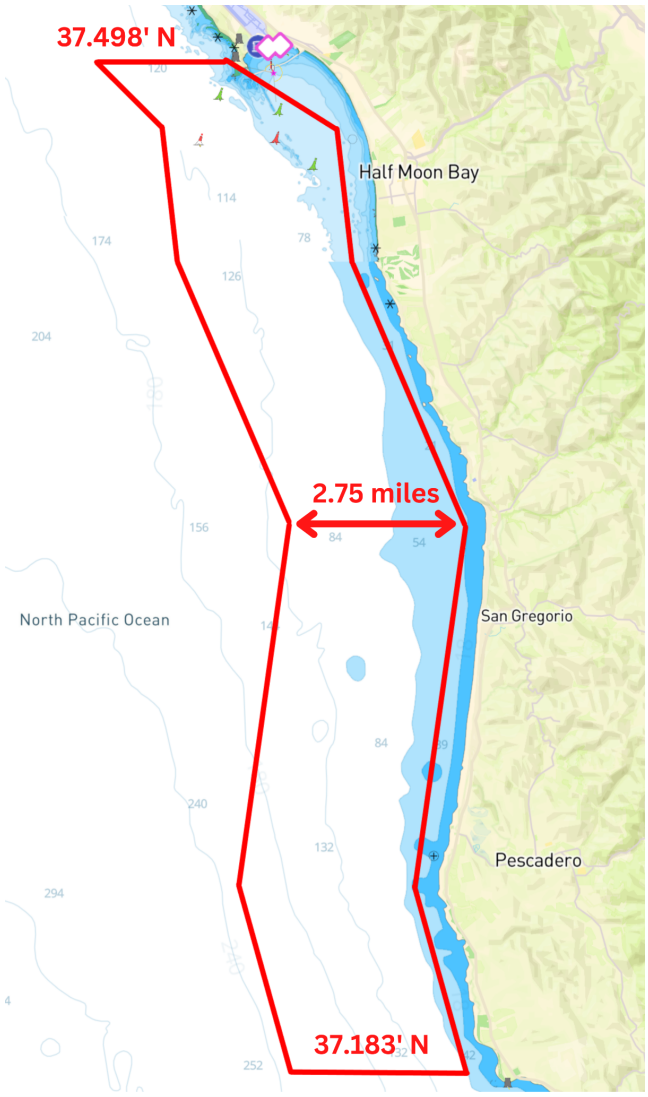
Thank you,
Marina



Vessel Name	F/V Pale Horse
Boat Registration Number or Documentation	[redacted]
Owner Name	Brand Little
Owner Address	[redacted]
Owner Telephone Number	[redacted]
Operator Name	Brand Little
Operator Address	[redacted]
Operator Telephone Number	[redacted]



Vessel Name	F/V Northern Light
Boat Registration Number or Documentation	[redacted]
Owner Name	Don Marshall
Owner Address	[redacted]
Owner Telephone Number	[redacted]
Operator Name	Don Marshall
Operator Address	[redacted]
Operator Telephone Number	[redacted]



Vessel Name	F/V Sunrise
Boat Registration Number or Documentation	[redacted]
Owner Name	Steve Melz
Owner Address	[redacted]
Owner Telephone Number	[redacted]
Operator Name	Steve Melz
Operator Address	[redacted]
Operator Telephone Number	[redacted]

G. Signature

X

11/2/2022

Signature of Applicant Date

H. Application fee PAYMENT

Please see CDFW's EFP Program page for further information.