EXEMPTED FISHING PERMIT APPLICATION

ELECTRONIC MONITORING FOR GROUNDFISH IFQ VESSELS IN 2015 AND 2016

1. Date of Application: 5/23/14

2. Applicant

California Risk Pool
Fort Bragg Groundfish Association: Michelle Norvell
Half Moon Bay Groundfish Marketing Association: Lisa Damrosch
Central California Seafood Marketing Association: Bill Blue

3. Project Partners

Environmental Defense Fund: Shems Jud, Sarah McTee, Alexa Fredston-Hermann, Huff McGonigal
The Nature Conservancy: Melissa Stevens, Michael Bell, Kate Labrum

4. Summary

This EFP application seeks exemption from the requirements at 50 CFR 660.140 (h)(1)(i)(A), requiring observers on board trawl and fixed gear IFQ fishing trips during the 2015 and 2016 fishing seasons. In place of observers, we propose to use the electronic accountability and reporting mechanisms described below as well as any additional measures the Council may require. The EFP includes approaches for both trawl and fixed gear vessels under one application. However, if for any reason the provisions applying to one of these sectors are not approved, it is our hope that the Council may view the trawl and fixed gear components as severable.

Details are provided in Sections 10 and 11, but the primary components of this application are as follows:

- EFP participants will provide all quota needed to conduct the EFP.
- All fixed gear vessels in this EFP will operate under maximized retention.
- Two shoreside bottom trawl vessels will also operate under a maximized retention plan, while two others will operate under optimized retention. Testing both approaches to retention requirements will allow for a comparison of respective costs and operational feasibility. The bottom trawl vessels operating under optimized retention may discard arrowtooth flounder, Dover sole, and English sole. Individual vessel monitoring plans will be used to outline appropriate catch handling and discard methods for those species.
- Field testing will begin with 100% observer coverage, *before* the permit that exempts EFP vessels from the 100% observer coverage requirement is issued. This initial phase will use both observers and electronic monitoring (EM) to establish a baseline for comparison once observers are removed, and will allow more fishing trips and sea-days overall to be included in the project. Observers are proposed to be retained on 20% of all trips even after the permit

is issued, to ensure that biological information is collected as needed for the West Coast Observer Program, and for other reasons discussed in Section 11.

- All Pacific halibut will be measured on a length board in view of an EM camera, and then discarded. Quota will be deducted from the vessel's quota account by calculating the weight of the halibut from its length, and then applying a vessel-specific average halibut mortality rate from 2011-2014 using Observer Program data (providing the vessel caught halibut after 2011). For vessels using hook and line gear, the mortality rate established by the Groundfish Observer Program will be applied, consistent with existing Observer Program protocol. If the Council concludes that it cannot authorize exemptions to rules relating to halibut discard and mortality estimates, this EFP can be conducted with the conservative assumption of 100% mortality of discarded halibut. We are also interested in collaborating with PSMFC on their research evaluating proxy factors to estimate halibut mortality.
- An electronic logbook will serve as the primary source of data for documenting and accounting for discards. To confirm that discard data in the e-logbook is correct, 100% of video from the discard control point on bottom trawl vessels will be reviewed. In addition, video from 10% of fishing events (i.e. hauls) on all vessels will be reviewed. Retained catch data from the e-logbook will be confirmed using shoreside catch monitor data.

5. Statement of Purpose and Goals

Purpose

The purpose of this EFP is to help identify a pathway towards a viable and more cost effective means of ensuring accountability in the Pacific groundfish catch share grogram by testing the operational and cost implications of using EM to monitor compliance with retention requirements.

Goals

1. Identify individual and overall cost components of implementing EM on fixed gear and bottom trawl vessels.
2. Establish best practices for discard control points on bottom trawl vessels using optimized retention.
3. Compare the relative benefits and drawbacks of optimized and maximized retention fishing plans.
4. Determine whether human observers and EM have different effects on fishing behavior.
5. Identify improvements to EM systems and protocols that can be made to inform a broader regulatory approach that encompasses all segments of the groundfish fleet.
6. Build comfort with EM within the industry, law enforcement, and management communities
7. Operationalize the lessons learned through national EM pilot studies.
8. Determine how to implement electronic monitoring and accountability in a way that will provide economic relief and operational flexibility to the groundfish IFQ program while maintaining individual accountability and the integrity of the catch share program.

Definition of Terms

This EFP will use a definition of "retained catch" and "discarded catch" (i.e. will describe what fish are to be counted against the vessel's quota) based on the pending GEM Committee recommended definitions and subsequent NMFS guidance on this topic. We ask for NMFS/GEM Committee guidance on definitions to be consistently applied to all EFP applicants.

6. Justification and Broader Significance

The transition of the Pacific groundfish fishery to catch share management has brought considerable conservation and management benefits including significantly reduced discards and bycatch of overfished species. Fleetwide revenues under the program have also increased. A critical component of the catch share's success is 100% accountability through at-sea observers; however, the costs associated with these monitoring requirements also pose the greatest risk to the program. As the fleet begins to bear more of the financial burden of monitoring, smaller businesses that are already at the margin of profitability may no longer be viable, resulting in socioeconomic impacts to the fishermen and their port communities. Beyond direct costs, the deployment of human observers also poses logistical and operational challenges to the fleet that prevent the program from reaching its full potential. These types of impacts will have serious negative consequences for the durability and scalability of this catch share program. This is therefore not only an economic issue, but a significant conservation and management issue as well.

While the EFP would be limited in scope and number of participating vessels (approx. 7), it has much broader significance through its potential to inform an eventual regulatory package that applies across the fleet. Beyond West Coast groundfish, national EM programs are struggling to operationalize. This EFP represents an important opportunity to move EM forward in a vital fishery and in a manner that is well controlled.

This EFP will provide a detailed cost breakdown for monitoring vessels in this fishery using EM, and the contribution of individual EM components to the overall cost will be identified. This project will provide detail on the optimal design of discard areas and demonstrate the ability of EM trained analysts to accurately speciate and estimate weights for certain flatfish (see Section 9). By providing a cost and logistics comparison of optimized and maximized retention for trawl, this EFP may also help to guide the Council's decision-making process with regards to EM for these sectors. The authors of this EFP plan to work closely with the SSC and the GMT to ensure data collection and analysis is done in a thoughtful and predetermined fashion so that it contributes the most value to EM research in general.

7. Duration

Given the amount of resources required to approve and issue an EFP, we request the permit be issued for 2 years (2015, and 2016). However, if the Council wishes to limit the EFP to a single year we request that it be for 2015.

8. Number of Vessels

We anticipate that approximately 7 vessels will participate in this EFP: 3 from the fixed gear fleet and 4 trawlers.

9. Description and Amount of Harvested Species

Target Species: Sablefish, Dover Sole, Chilipepper rockfish, Lingcod, minor shelf rockfish, minor slope rockfish, Splitnose rockfish, Yellowtail rockfish, English sole, Petrale sole, other flatfish

Rebuilding Species: Cowcod, Canary rockfish, Yelloweye rockfish, Darkblotched rockfish, Bocaccio

The amount of these species that will be taken is difficult to estimate, however, the participating vessels will be providing all quota required and no request for quota pounds is being made.

10. Accountability Mechanism

In an effort to mitigate accountability concerns, the vessels participating in this EFP will be required to sign a collective contractual agreement. The EFP manager will hold all fishermen accountable to the terms of the contract. This structure will help ensure that compliance incentives are in place and that minor issues are dealt with by the EFP applicant.

This contract will be developed in partnership with, and to the satisfaction of, NOAA OLE, and will include the following features:

i. An acknowledgement by signatories that violations by one vessel may result in penalties for all participants, and that potential violations will be reviewed by an EFP manager (selected by the participants) and notified to NMFS OLE.
ii. An acceptance by participants of the possibility of the EFP being revoked in the case of a serious violation by a single fishing vessel.
iii. Incentives to report accurately and to cooperate with EM protocols.
iv. This contract will *not* involve any quota pooling or mandatory spatial fishing plans.
v. A description of possible violations and the associated monetary, quota, and participation penalties. This penalty schedule will be developed in partnership with, and to the satisfaction of, NOAA OLE.

Finding electronic means of maintaining the accountability that human observers provide is a challenge, particularly for the trawl segment of the fleet. Adoption of EM creates genuine accountability and enforcement risks. However, there are ways to mitigate these risks, and they need to be compared to the broader programmatic and policy risks associated with failing to address the issue of observer costs, particularly for the non-whiting fleet. Any risk also needs to be evaluated in the context of those risks inherent in the management of other sectors of the groundfish fleet, including the recreational and open access sectors. The insurance of accountability, in terms of identifying instances of non-compliance and determining penalties, is described in Section 11. On balance, we believe that given the measures proposed in this application, the benefits of moving forward with this EFP far outweigh any perceived risks.

The following retention plans were drawn from the range of Alternatives for Groundfish Electronic Monitoring Policy adopted by the Council in November 2013.

<u>Maximized Retention Plan</u>

This plan will apply to *all fixed gear vessels* and *two bottom trawl vessels.* Vessels fishing under maximized retention will retain *all groundfish species*, both IFQ species and non-IFQ species. This retention plan reflects Alternative 2: Maximize Retention of the discard alternatives from the November 2013 PFMC meeting, with provisions intended for other gear types (i.e. midwater trawl) removed:

i. Discards **required** for:
    a. ESA species, MMPA species, and other protected species.
    b. Prohibited species, when applicable.
    c. Halibut, after a length measurement is obtained; see below for details.

ii. Discards **permitted** for:
    a. Non-IFQ, non-groundfish species that can be clearly recognized as such and will not be confused with IFQ groundfish in EM video review (e.g. elasmobranchs or finfish not listed in groundfish FMP).
    b. Trash, mud, wood, and other inorganic debris.
    c. Crabs, starfish, coral, sponges and other invertebrates.
    d. Situations where human life or safety is threatened.

iii. Discards **prohibited** for:
    a. IFQ groundfish species.
    b. Non-IFQ groundfish species.
    c. Prohibited species, when applicable.

Optimized Retention Plan

After consulting with fishery participants, we concluded that a maximized retention plan may not be economically viable for some shoreside bottom trawl vessels (Alternative 2). Shoreside bottom trawl vessels often discard low-value fish at-sea, typically flatfish. Retaining these species could significantly impact the profitability of a vessel's fishing trip by filling the hold with low-value or unmarketable catch. Additionally, even if vessels were to land these fish (which are typically undersized, unmarketable, or both), processors and/or buyers likely may accept them. Ultimately, these undesirable fish could need to be discarded on land or at sea, resulting in additional disposal costs to the fishing vessel.

Industry members identified three low-risk species that represent much of the discards in this fishery. These high-quota, low-attainment species are Dover sole, English sole and arrowtooth flounder. It is worth noting here that some of the trawl vessels that will participate in this EFP are also experimenting with modified trawl gear that significantly reduces their bycatch of small flatfish, often from thousands of pounds down to hundreds of pounds. We anticipate that the catch accounting system proposed for bottom trawl discards will be used for no more than several hundred pounds of discarded fish per trip. In 2012, California Risk Pool vessels discarded an average of 50 pounds or less each of Dover sole, English sole, and arrowtooth flounder per trawl tow. More detail on how discards will be identified is given under Section 11.

Consequently, we propose to explore under this EFP a limited discard or "optimized retention" option that better reflects fishing operations and needs, thereby providing a realistic model for how EM could operate in this fishery in the future. We anticipate that two bottom trawl vessels in this EFP will operate under optimized retention and two under maximized retention (using the retention plan described above), allowing a comparison of both retention plans.

This proposal is a modified version of Alternative 3, Retention of Catch Share Species with Options:

i. Discards **required** for:
    a. ESA species, MMPA species, and other protected species.
    b. Prohibited species, when applicable.
    c. Halibut, after a length measurement is obtained; see below for details.

ii. Discards **permitted** for:
    a. Non-IFQ, non-groundfish species that can be clearly recognized as such and will not be confused with IFQ groundfish in EM video review (e.g. elasmobranchs or finfish not listed in groundfish FMP).

b. Dover sole, provided they can be identified and assigned weight estimates using EM.
c. English sole, provided they can be identified and assigned weight estimates using EM.
d. Arrowtooth flounder, provided they can be identified and assigned weight estimates using EM.
e. Trash, mud, wood, and other inorganic debris.
f. Crabs, starfish, coral, sponges and other invertebrates.
g. Situations where human life or safety is threatened.

iii. Discards **prohibited** for:
a. All IFQ groundfish, excluding Dover sole, English sole, and arrowtooth flounder.
b. IFQ groundfish that cannot be adequately identified by the skipper or crew and/or assigned weight estimates using EM.
c. Non-IFQ groundfish species.
d. Prohibited species, when applicable.

Halibut

This EFP is intended to test an operational model of EM that could be scaled to the entire fleet; consequently some estimate of halibut mortality is necessary. Understanding that this application is open to vessels that are not part of the California Risk Pool (whose members have not caught Pacific halibut since implementation of the IFQ), we propose the following method for assessing halibut mortality for any vessels in this EFP *with halibut history since 2011*, *except* those using hook and line gear:

> A quota deduction will be generated by obtaining a length measurement visible to the camera using a measuring board, which will then be used to calculate weight. A mortality estimate will be applied based on the vessel's individual 2011-2014 average halibut mortality rate, as determined by the Observer Program.

For hook and line gear, the mortality rate established by the Observer Program will be applied instead of the vessel-specific average. The halibut handling protocol on-board will be the same as other gear types. This is consistent with current Observer Program protocols for this gear type.

California Risk Pool vessels, and many other vessels in California, have not caught Pacific halibut since the implementation of the catch share program in 2011. However, if halibut are encountered, we propose the following method for assessing halibut mortality for all vessels in this EFP *without halibut history since 2011*, *except* those using hook and line gear:

> A quota deduction will be generated by obtaining a length measurement visible to the camera using a measuring board, which will then be used to calculate weight. A mortality estimate will be applied based on the fleet-wide 2011-2014 average halibut mortality rate, as determined by the West Coast Observer Program.

If the Council concludes that it cannot authorize exemptions to the rules relating to halibut discard and mortality estimates, we request that the EFP be approved with the conservative assumption of 100% halibut mortality.

If 2014 Observer Program data is not available when this project begins, halibut mortality estimates will be derived from 2011-2013 data until and unless 2014 data becomes available during the project.

11. Proposed Data Collection

EM Services

Three components exist in the data collection process for EM: the technical system (the EMS itself), the field services (hard drive retrieval and maintenance), and the video review. This EFP intends to use hardware (camera systems, sensors, hard drives, etc.) and video analysis software from Archipelago Marine Research Ltd. We are currently exploring options for video review, including Pacific States Marine Fisheries Commission (PSMFC) and Tenera Environmental. PSMFC has been conducting EM research since 2012 and has experience reviewing EM footage from the Archipelago systems. Tenera Environmental is currently contracted to conduct field services for PSMFC's Pacific groundfish EM study, and was certified to review Archipelago EM footage under the 2010 EM EFP conducted by The Nature Conservancy. Regardless of which agency performs video review services, it is expected that Tenera Environmental or another private vendor will be contracted to perform field service responsibilities under this EFP.

The EMS will include the following:

i. Secure, watertight control box for data storage.
ii. Digital cameras that include or are connected to a date and time stamp and counter.
iii. A minimum camera resolution and frame capture rate (to be determined).
iv. A minimum amount of on-board data storage (to be determined).
v. Tamper-evident hardware.
vi. A monitor showing a live feed from all EMS cameras, so that the skipper can ensure the EMS is functioning correctly.
vii. An electronic reporting system consisting of a device (smartphone, tablet, or computer) and software that, at a minimum, contains data entry fields and units that conform to the existing state logbooks.

The installation and operation of the EMS will be governed by the Individual Vessel Monitoring Plan (IVMP) drafted by the EMS provider in collaboration with the vessel skipper. The IVMP will address the following:

i. Hardware, including but not limited to the control box, removable hard drive, camera specifications, GPS receiver, and pressure and motion sensors.
ii. Software for data collection.
iii. Protocols for EMS malfunction.
iv. Back-up equipment use protocols.
v. Catch handling protocols.
vi. Vessel layout and camera coverage, including screen shots of camera views.
vii. Number and placement of cameras.
viii. Lighting requirements.
ix. Required/necessary power supply for EMS.
x. Instructions for care and maintenance of the EMS.
xi. Schedule for EMS maintenance and data transfer.
xii. Instructions for filling out and submitting electronic logbooks.

EM data capture and analysis

For the purpose of assessing compliance with individual quotas, EM data analysis will draw on a variety of data sources, including pressure and motion sensors, electronic logbooks, VMS, and GPS devices, shoreside catch monitors, as well as the camera footage itself.

The EMS service provider and any 3rd party contractors selected by the EFP participants will:

i. Describe and adhere to a clear chain of custody for hard drives with EM data.
ii. Ensure the timely retrieval of hard drives from EFP vessels.
iii. Maintain confidentiality of EM data at all times.

In this EFP, quota accounting will be accomplished by cross-checking the electronic logbook against two main data sources: EM, which provides data on discards, and shoreside catch monitors, which provide data on landings. In other words, the total catch and discards of a vessel will be determined using the shoreside monitor data plus any discard events witnessed using EM to verify the e-logbook.

A designated discard control point will be established and all discards are required to occur at that location on the vessel. A camera will be focused on the discard control point and 100% of discard events will be reviewed. Some examples of discard control points include discard chutes, or specific areas on deck where fish are passed individually through a camera view and then discarded. For each of the discard events, the EM reviewer will identify each IFQ fish to species and record a weight estimate, likely based on length-weight relationships for the species or known volumes of storage containers on deck. This discard data will be compared to the vessel e-logbook.

Based on PSMFC research presented at the April Council meeting and conversations with service providers, discard control points with designated cameras greatly improve the quality of EM video and the accuracy of quantifying discards. Using high-quality video where fish are viewed individually, and attempting to differentiate only three IFQ groundfish species, video reviewers should be able to confidently speciate all IFQ fish discarded under the optimized retention plan. In addition, as described in Section 10, the volume of small flatfish discarded by participating vessels is likely to be relatively small.

As an additional layer of accountability, 10% of the fishing events identified in the vessel's EM video data (at least one per trip) will be randomly selected for review. This review will ensure that no discards occurred outside of the discard area. Sensor data will be used to confirm all fishing events and trips were recorded in the electronic logbook.

Concurrent observer coverage

This EFP is requesting an exemption from regulations mandating 100% observer coverage. However, we anticipate deploying EM before NMFS issues the EFP and while observers are present on every trip. This initial 100% observer coverage with EM will serve multiple purposes. It will ensure that no lapses in full accountability occur while the skipper and crew are adjusting to EM. It will also allow the project to determine if an observer effect is occurring.

Once each vessel operator has stated their readiness in operating with EM, and the EFP has been issued, we intend to reduce observer coverage to 20% – representing the approximate level necessary for the Groundfish Observer Program to collect biological data. The design of this component will be developed with input from the GMT and SSC, and in collaboration with the Observer Program, to ensure that the resulting data is informative. It is imperative to conduct a substantial number of fishing trips during this EFP *without* an observer present, for a number of reasons:

- Maintaining both 100% observer coverage and full EM deployment represents redundant expenditures, undermines the incentive to participate, and fails to achieve the goal of cost-effective monitoring for this fishery.
- The percentage of fish discarded vs. retained, and the overall catch composition, may be compared from vessels fishing with and without an observer to determine if fishing behavior

changes. This analysis will help determine whether an "EM effect" exists similar to the "observer effect".

- This approach will allow the Groundfish Observer Program to test out protocols for biological data collection as well as catch sampling under partial observer coverage.
- Members of the Pacific Council have expressed concern during the EM regulatory process about abruptly transitioning from 100% observer coverage to a much lower percentage in the fixed gear and bottom trawl fleets. This EFP will provide proof-of-concept that full accountability can be maintained using only EM in those sectors.
- Valuable lessons will be learned from the deployment of EM and subsequent data collection and analysis that will inform the EM regulatory alternatives currently being developed by the Council and NMFS.
- Recent reports by Pacific States Marine Fisheries Commission commented that the presence of an observer during their EM study may have had a deleterious effect on their results, because the observer may have prevented crew members from utilizing all available deck space or handling catch clearly.

Quota accounting

Catch accounting will use three sources of data: e-logbooks, shoreside catch monitor landing data, and data from the EM video review. This accounting system relies on the assumption that all discards are reported in logbooks and captured by the EMS (and any behavior violating this assumption would be treated as a violation, as described below).

For discarded fish, the vessel's quota account will be debited whichever is greater: the estimated weight by species from the EM video reviewer, or the recorded weight by species from the e-logbook. For retained fish, the vessel's quota account will be debited the weight by species from the shoreside catch monitor, consistent with the status quo under 100% observer coverage.

Discrepancies identified during video review may include, but are not limited to, the following:

i. Unauthorized discards: discarding species required to be retained (e.g. rockfish).
ii. Discard events occurring outside of the predetermined discard area.
iii. Crew behavior or fish handling preventing accurate fish identification or weight estimation.
iv. Discard event was not recorded in e-logbook.
v. Fishing trip or event not recorded in e-logbook
vi. The e-logbook underestimates discards by more than 10% for any species.

If the discrepancy between the e-logbooks and the EM video reviewer is greater than 10%, then a video reviewer will watch 100% of the video from all fishing events in the trip. The vessel will be responsible for the cost of additional video review.

Compliance and penalty structure

We define an EMS failure as one or more cameras malfunctioning, and/or any loss of sufficient quality video footage during a fishing event. In every case of EM malfunction, the camera provider will examine the EMS for signs of tampering. In the event of EMS malfunction, vessels may return to traditional monitoring using on-board observers in order to begin another fishing trip if desired. The consequences of an EMS failure hinge on the tamper-evident nature of the EM equipment, the crew adhering to the care and maintenance protocols, as well as any disruption in video feeds to the monitor available to the skipper and crew:

i. If the EMS fails and the skipper's EM video feed shows some malfunction, the skipper must alert the service provider and immediately suspend fishing activities and return to port. The skipper may not begin another fishing trip without carrying an observer or ensuring the EMS is repaired.
ii. If an EMS failure is noted during data retrieval and analysis, but the EM video feed had not been affected (i.e. the skipper was unaware), the vessel's quota account will be settled using the e-logbook as confirmed with fish ticket data. The quota account will also be debited an additional 5% of the fishing trip's landed pounds (of each species) to compensate for the EMS failure. The skipper may not begin another fishing trip without carrying an observer or ensuring the EMS is repaired.
iii. *In any EMS failure*, if the service provider determines the system has been tampered with, the vessel will be penalized according to NMFS and OLE determination.

These measures and others will be codified in the collective contract among EFP participants, described in Section 10.

12. Vessel Selection Process

Up to 7 vessels will be selected to participate in the EFP that meet the following criteria.

The *vessel* must:
i. Have sufficient space and ventilation for EMS hard drive.
ii. Have sufficient power to run EMS uninterrupted.
iii. Have or establish a designated discard area that can be monitored with an unobstructed view.
iv. Create an Individual Vessel Monitoring Plan (IVMP).
v. If possible, have participated in a previous EM pilot project or EFP.

The *skipper/owner* must:
i. Be engaged in and responsible for EMS deployment, troubleshooting, and implementation on their vessel.
ii. Be willing to retrofit the vessel and catch handling operations necessary for EM deployment.
iii. Participate in or designate a representative to participate in PFMC meetings and related workshops, representing this EFP.
iv. Be able to re-train crew in appropriate behavior for EM.
v. Sign a collective contract indicating acceptance of appropriate protocols in the case of EM malfunctions and penalties in the case of violations.
vi. Fill out and submit electronic logbooks, in addition to the currently required State logbooks.
vii. Must be in "good standing" with NMFS and Risk Pool (i.e. no outstanding violations).
viii. Share vessel-specific 2011-2014 halibut mortality estimates as determined by the Observer Program (if any halibut were caught), as well as all discard and catch data from fishing that occurs under this EFP.

The table below includes all 10 vessels currently participating in the California Risk Pool, up to 7 of which may participate in this EFP. Inclusion in this list does not imply any commitment at this stage on the part of these fishermen to participate in the EFP. Other vessels that are not members of the California Risk Pool may also participate in this EFP; the total number of vessels will not exceed 7.

The first receivers that may receive landings from EFP fish include, but are not limited to, the following:
- Caito Fisheries, Ft. Bragg, CA

- Deyerle Brothers Seafood Inc., Monterey, CA
- Alber Seafoods Inc., San Francisco, CA
- North Coast Fisheries Inc., Santa Rosa, CA
- Bettencourt and Son, Half Moon Bay, CA
- Central Coast Seafood, Atascadero, CA
- Mr. Morgan Fisheries Inc., Moss Beach, CA

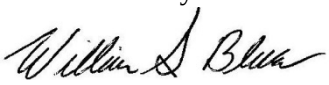
Owner/Skipper	Vessel	Gear
Geoff Bettencourt	Moriah Lee	Traps
Steve Fitz	Mr. Morgan	Scottish seine
Bernie Norvell	Donna J	Trawl
Brian Jourdain	Blue Pacific	Traps
Tom Estes	Tara Dawn	Trawl
Vince Doyle	Verna Jean	Trawl
Bill Blue, John Blue	Brita Michele	Traps
David Rose	Nikki J	Longline
Rob Seitz	South Bay	Trawl
Keith Marshall	Captain John	Trawl

13. Times and Places of Fishing, Type of Gear

Exact fishing locations and times will depend on the vessels that are selected, their home ports and fishing plans. The gears used will be groundfish bottom trawl gear and groundfish fixed gear. For trawl vessels, it is anticipated that fishing will occur both seaward and shoreward of the trawl Rockfish Conservation Area and with both large and small footropes. All fishing will be conducted south of Cape Mendocino.

14. Signatures

Lisa Damrosch
Executive Director
Half Moon Bay Groundfish Marketing Association



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