

National Fish and Wildlife Foundation
Fisheries Innovation Fund - 2015 - Submit Final Programmatic Report (New Metrics)
Grantee Organization: Buccaneer Fishing
Project Title: Operationalizing Electronic Monitoring in the West Coast Groundfish Fishery (CA)

Project Period	6/01/2015 - 12/31/2017
Project Location	Morro Bay, San Luis Obispo County, California. Monterey, Monterey County, California. Moss Landing, Monterey County, California. Half Moon Bay, San Mateo County, California. Fort Bragg, Mendocino County, California.
Description (from Proposal)	Operationalizing electronic monitoring for the Pacific groundfish fishery by defining costs and operational protocols of different catch handling requirements. Project will compare total costs, retention scenarios, validate logbook accuracy, and help develop third party data review standards.
Project Summary (from Proposal)	
Project Status and Accomplishments	<p>In 2012, the Pacific Fishery Management Council (Council) began a process to add Electronic Monitoring (EM) as a more cost effective tool in the Pacific Groundfish IFQ sector, which has been required to have 100% monitoring. The Nature Conservancy (TNC), the California Groundfish Collective (CGC) and the Environmental Defense Fund (EDF) partnered during 2015-2018 to manage an Exempted Fishing Permit (EFP) project in the West Coast groundfish fishery to implement EM develop, test, and formalize an EM program for the fishery. The purpose of this project is to implement the use of EM in lieu of human observers for catch compliance purposes and in so doing inform the development of new EM regulations for the IFQ fishery. These regulations will facilitate a cost-effective means of ensuring catch accountability that can help preserve community access to the fishery along the West Coast, and potentially inform similar solutions in other fisheries.</p> <p>Thanks in large part to the activities funded by this NFWF project, in 2018 the West coast IFQ trawl sector will be the first fishery in the nation to have an EM regulatory program for a mixed species fishery. A total of six vessels now have EM hardware installed on their vessels; this represents over 50% of the IFQ trawl fishery in California. As of this submission, NOAA Fisheries is poised to publish the final rule implementing EM for fixed and whiting gear sectors, and has published a similar proposed rule for non-whiting bottom and mid-water trawl gear sectors that is set to be final in early 2019. Many of the components of the EM regulatory program were directly informed by on-the-water testing and participatory development from this EFP project.</p> <p>We describe these in more detail in attached report.</p>
Lessons Learned	<p>Over the course of the three year project, we have experienced significant learning in how the program can and should work to be more cost-effective and efficient. In the first year of the project, fishermen and reviewers worked closely to solve many issues around catch handling/sorting and how camera was angled to document discard events. Fishermen were able to develop new techniques that reduced time required for review and for sorting. Through this ongoing feedback process, regular communication channels and trusted relationships were built between fishermen, NMFS, PSMFC and EM service providers. We think this is critical to the ultimate success of any EM program. Also, establishing a single point of contact for a group of vessels – such as a project manager who works directly with NMFS and video review provider - can improve communication among stakeholders and streamline administration.</p> <p>In tracking program costs, we learned that EM program costs can be variable and depend on the final program design. Fishery characteristics such as number of vessels participating, location of port and the amount of fishing activity have a strong influence on what the program ultimately costs. Given this reality, a project like this can improve design and lead to a more cost-effective regulatory program.</p> <p>Finally, we were able to demonstrate that EM systems can accurately validate logbook data (as defined in the Council EM package) in comparison to human observer data in accounting for discards. We think this project, as well as other EFPs operating over those same years, provided Council members with assurance that allowed them to move forward in adding EM as an option for compliance monitoring.</p>

Activities and Outcomes

Funding Strategy: Planning, Research, Monitoring

Metric: FIF - Tool development for decision-making - # tools developed

Required: Recommended

Description: Examples: risk pools, modified/improved fishing gear, improved fishing practices, voluntary avoidance methods, electronic monitoring devices (cameras), software systems/applications, etc

Starting Value	2.00 # tools developed
Value To Date	2.00 # tools developed
Target value	3.00 # tools developed

Note: At project start (2015), there was only one monitoring program available: at sea human observers. As of early 2018, the National Marine Fisheries-Service (NMFS) is poised to publish a final rule implementing an EM program for fixed and whiting gear. That will be followed up by a proposed rule for EM program for the non-whiting bottom and mid-water trawl sectors. We expect the proposed rule to be released by spring or summer 2018, and to be final in early 2019. So, while the current number is two, by 2019 there will be three monitoring programs in regulation for this fishery.

Funding Strategy: Capacity, Outreach, Incentives

Metric: FIF - Building institutional capacity - # FTE with sufficient training

Required: Recommended

Description: The number of additional staff expected to be hired to participate in/manage the project, if any

Starting Value	2.00 # FTE with sufficient training
Value To Date	5.00 # FTE with sufficient training
Target value	4.00 # FTE with sufficient training

Note: The rationale behind this metric is to expand the capacity (training and expertise) for EM video data review and explore if using a 3rd party would optimize the review process and reduce costs. At project start, PSMFC employed two reviewers. They currently have a dedicated Electronic Monitoring Program that employees five full time video reviewers. NMFS will continue to pay for EM video review by PSMFC, because data confidentiality and ownership issues need to be resolved before allowing another 3rd party to assume responsibility for EM data review (set for 2020).

Funding Strategy: Planning, Research, Monitoring

Metric: FIF - Monitoring - # monitoring programs

Required: Recommended

Description: Enter the number of monitoring programs established or underway

Starting Value	1.00 # monitoring programs
Value To Date	3.00 # monitoring programs
Target value	3.00 # monitoring programs

Note: Prior to 2015, the monitoring tools available to managers were Vessel Monitoring Systems (VMS) and human observers. The addition of an EM tool for fixed gear and whiting is final as of spring 2018, EM tools for trawl sector expected to be finalized by early 2019.

Funding Strategy: Planning, Research, Monitoring

Metric: FIF - Monitoring - # vessels in monitoring program

Required: Recommended

Description: Number of vessels directly engaged/participating in monitoring program(s)

Starting Value	0.00 # vessels in monitoring program
Value To Date	6.00 # vessels in monitoring program
Target value	7.00 # vessels in monitoring program

Note: As of this final report, a total of 6 vessels have participated in the EM EFP. Unfortunately, one vessel who was participating was removed from the EFP by NMFS after violating terms of the EFP.



NFWF

Final Programmatic Report Narrative Operationalizing Electronic Monitoring in the West Coast Groundfish Fishery (CA)" Project # 47964

Instructions: *Save this document on your computer and complete the narrative in the format provided. The final narrative should not exceed ten (10) pages; do not delete the text provided below. Once complete, upload this document into the on-line final programmatic report task as instructed.*

Project Background:

In 2012, the Pacific Fishery Management Council (Council) began a process to add Electronic Monitoring (EM) as a more cost effective tool in the Pacific Groundfish IFQ sector, which has been required to have 100% monitoring. The Nature Conservancy (TNC), the California Groundfish Collective (CGC) and the Environmental Defense Fund (EDF) partnered during 2015-2018 to manage an Exempted Fishing Permit (EFP) project in the West Coast groundfish fishery to implement EM develop, test, and formalize an EM program for the fishery. The purpose of this project is to implement the use of EM in lieu of human observers for catch compliance purposes and in so doing inform the development of new EM regulations for the IFQ fishery. These regulations will facilitate a cost-effective means of ensuring catch accountability that can help preserve community access to the fishery along the West Coast, and potentially inform similar solutions in other fisheries.

1. Summary of Accomplishments

In four to five sentences, provide a brief summary of the project's key accomplishments and outcomes that were observed or measured.

Thanks in large part to the activities funded by this NFWF project, in 2018 the West coast IFQ trawl sector will be the first fishery in the nation to have an EM regulatory program for a mixed species fishery. A total of six vessels now have EM hardware installed on their vessels; this represents over 50% of the IFQ trawl fishery in California. As of this submission, NOAA Fisheries is poised to publish the final rule implementing EM for fixed and whiting gear sectors, and has published a similar proposed rule for non-whiting bottom and mid-water trawl gear sectors that is set to be final in early 2019. Many of the components of the EM regulatory program were directly informed by on-the-water testing and participatory development from this EFP project.

We describe these in more detail below.

2. Project Activities & Outcomes

Activities

- *Describe and quantify (using the approved metrics referenced in your grant agreement) the primary activities conducted during this grant.*

- *Briefly explain discrepancies between the activities conducted during the grant and the activities agreed upon in your grant agreement.*

Activities

- TNC, EDF and CGC the provided joint public testimony to the Pacific Council on progress made under this research program (April 2016, April 2017)
- Collected 2015-2017 EFP activity, accuracy and cost data compiled into a report submitted to the Council in April 2017¹
- Total EFP trips completed 2015-2017: 222
- Total EFP hauls completed: 2,594, total hours of video review: 1,870
- Informed development of EM regulations (Final and proposed rules 2018)
- Co-developed key research questions related to census versus audit-based video review in partnership with PSMFC and NMFS staff
- Successfully completed Collective Enforcement Agreement, signed by all parties to the project and is now part of regulatory language as an option
- Informed development of the Vessel Monitoring Plans which now serve as a template for other EFPs
- Informed analyses by PSMFC to determine level of video review for future EM program

Outcomes

- *Describe and quantify progress towards achieving the project outcomes described in your grant agreement. (Quantify using the approved metrics referenced in your grant agreement or by using more relevant metrics not included in the application.)*
- *Briefly explain discrepancies between what actually happened compared to what was anticipated to happen.*
- *Provide any further information (such as unexpected outcomes) important for understanding project activities and outcome results.*

Number of Monitoring Programs project start: 1 current: 2 target: 3

At project start (2015), there was only one monitoring program available: at sea human observers. As of early 2018, the National Marine Fisheries-Service (NMFS) is poised to publish a final rule implementing an EM program for fixed and whiting gear. That will be followed up by a proposed rule for EM program for the non-whiting bottom and mid-water trawl sectors. We expect the proposed rule to be released by spring or summer 2018, and to be final in early 2019. So, while the current number is two, by 2019 there will be three monitoring programs in regulation for this fishery.

Number of Tools Available: project start: 2 current: 3 target: 3

Prior to 2015, the monitoring tools available to managers were Vessel Monitoring Systems (VMS) and human observers. The addition of an EM tool for fixed gear and whiting is final as of spring 2018, EM tools for trawl sector expected to be finalized by early 2019.

Number of Vessels in Monitoring Program: project start: 0 current: 6 target: 7

As of this final report, a total of 6 vessels have participated in the EM EFP. Unfortunately, one vessel who was participating was removed from the EFP by NMFS after violating terms of the EFP.

¹ http://www.pcouncil.org/wp-content/uploads/2017/03/F2b_Sup_PubCom_Apr2017BB.pdf

During the first fishing year (2015-2016), two trawl vessels and three fixed gear vessels participated in the EFP project (5 total), completing 32 trips. In 2016-2017, two trawl vessels and two fixed gear vessels participated, completing 48 trips (4 total). Data through 2016 can be found in a report submitted to the PFMC in April 2017 [add URL]. In 2017, three trawl vessels and three fixed gear vessels participated, completing 94 trips (see table below). Over the project period, more than 2,400 hours of sorting time were reviewed resulting in approximately 1,100 hours of video review. These data and final results will be synthesized into an updated report that will be submitted to the Pacific Council during June 2018.

Table 1. EFP Participation by activity and gear type (2017)

	Bottom Trawl	Fixed Gear
Vessels	3	3
Trips	73	21
Hauls	468	452

Table 2. Video Review hours of sorting activity (2017) by gear type:

	Bottom Trawl	Fixed Gear
Total review hours of sort	355 hours	155 hours

Building Institutional Capacity: _____ project start: 2 _____ current: 5 _____ target: 4

The rationale behind this metric is to expand the capacity (training and expertise) for EM video data review and explore if using a 3rd party would optimize the review process and reduce costs. At project start, PSMFC employed two reviewers. They currently have a dedicated Electronic Monitoring Program that employs five full time video reviewers. NMFS will continue to pay for EM video review by PSMFC, because data confidentiality and ownership issues need to be resolved before allowing another 3rd party to assume responsibility for EM data review (set for 2020).

In April 2016, the Pacific Council selected 3rd parties as their final preferred alternative for EM video review. However in April 2017, industry requested that the current provider become the sole provider due to low cost and knowledge of the program. In September 2017 NMFS responded this was not a legal option, therefore a 3rd party provider program will be part of the EM regulatory program.

The project partners are currently working with NMFS to address these important considerations. Through this process we will continue to explore how we may be able to help NMFS establish standards and criteria for 3rd party reviewers and identify differences in review costs between PSMFC and another 3rd party.

Through this project, the California Groundfish Collective EFP was instrumental in helping NMFS develop workable program elements and policies, such as vessel monitoring plans and a collective enforcement agreement. The Pacific Council has extended the EFPs through 2018 or until EM regulations are in place. When the EM regulations for fixed gear and trawl gear are implemented, vessels will transition out of the EFP and operate under the regulatory program.

One other outcome/activity from the original proposal was the use of electronic logbooks. The partners intended to use an existing software program called eCatch, developed by TNC. However, due to how EFP implementation occurred with pre-determined video review partner (PSMFC), we were not in a position to implement an e-logbook system. It would have been additional burden on the fishermen.

PSMFC staff set up a simplistic ‘electronic’ logbook system whereby fishermen would take a photo of discard logbook and submit via text message or email.

3. Lessons Learned

Describe the key lessons learned from this project, such as the least and most effective conservation practices or notable aspects of the project’s methods, monitoring, or results. How could other conservation organizations adapt their projects to build upon some of these key lessons about what worked best and what did not?

Over the course of the three year project, we have experienced significant learning in how the program can and should work to be more cost-effective and efficient. In the first year of the project, fishermen and reviewers worked closely to solve many issues around catch handling/sorting and how camera was angled to document discard events. Fishermen were able to develop new techniques that reduced time required for review and for sorting. Through this ongoing feedback process, regular communication channels and trusted relationships were built between fishermen, NMFS, PSMFC and EM service providers. We think this is critical to the ultimate success of any EM program. Also, establishing a single point of contact for a group of vessels – such as a project manager who works directly with NMFS and video review provider - can improve communication among stakeholders and streamline administration.

In tracking program costs, we learned that EM program costs can be variable and depend on the final program design. Fishery characteristics such as number of vessels participating, location of port and the amount of fishing activity have a strong influence on what the program ultimately costs. Given this reality, a project like this can improve design and lead to a more cost-effective regulatory program.

Finally, we were able to demonstrate that EM systems can accurately validate logbook data (as defined in the Council EM package) in comparison to human observer data in accounting for discards. We think this project, as well as other EFPs operating over those same years, provided Council members with assurance that allowed them to move forward in adding EM as an option for compliance monitoring.

4. Dissemination

Briefly identify any dissemination of lessons learned or other project results to external audiences, such as the public or other conservation organizations.

The project team shared our results at the April 2016 and April 2017 Council meetings, as well as informally at the November 2016 National EM workshop and will apply results to future conference presentations on EM (such as the June 2018 IFOMC conference).

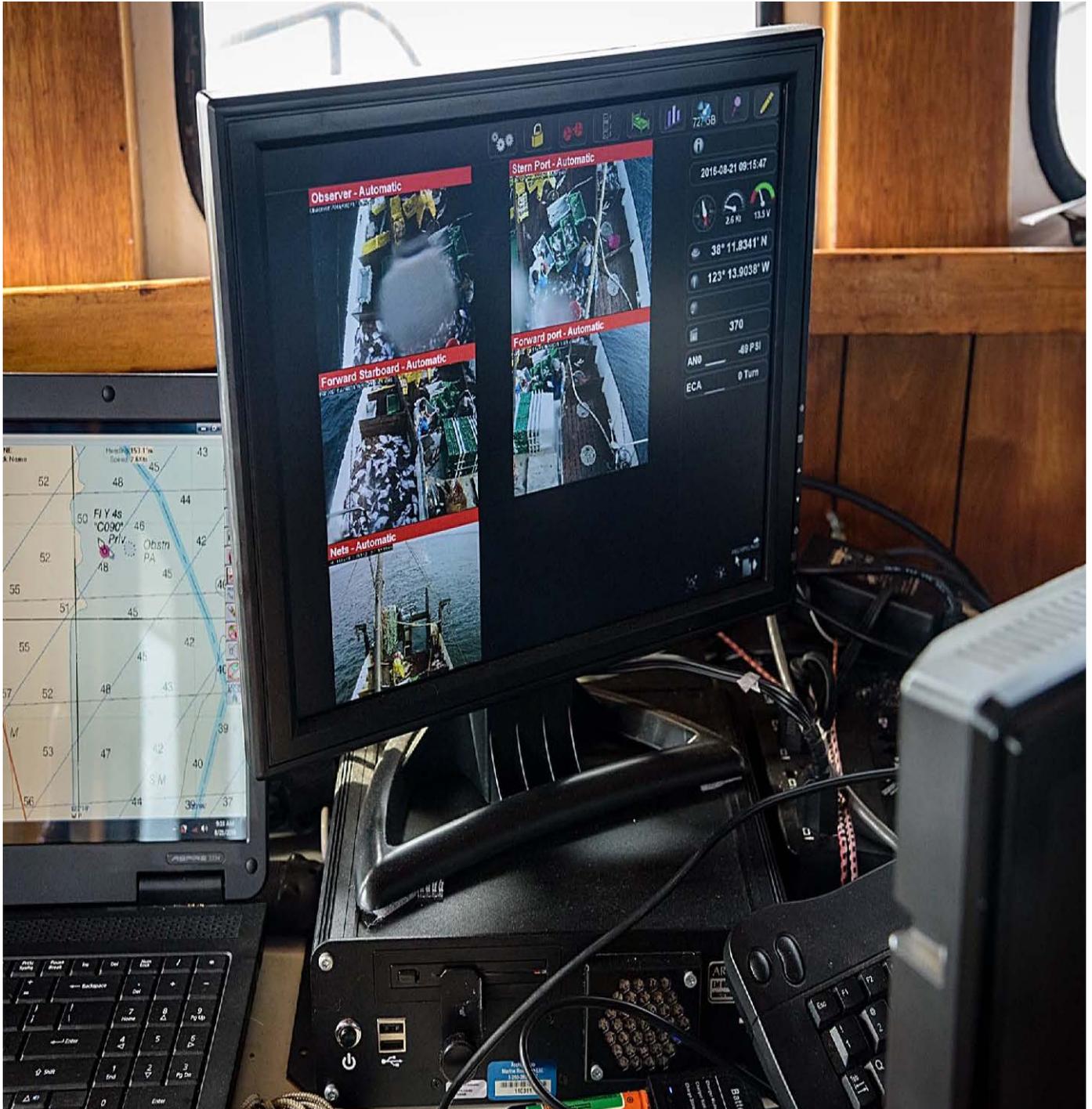
5. Project Documents

Include in your final programmatic report, via the Uploads section of this task, the following:

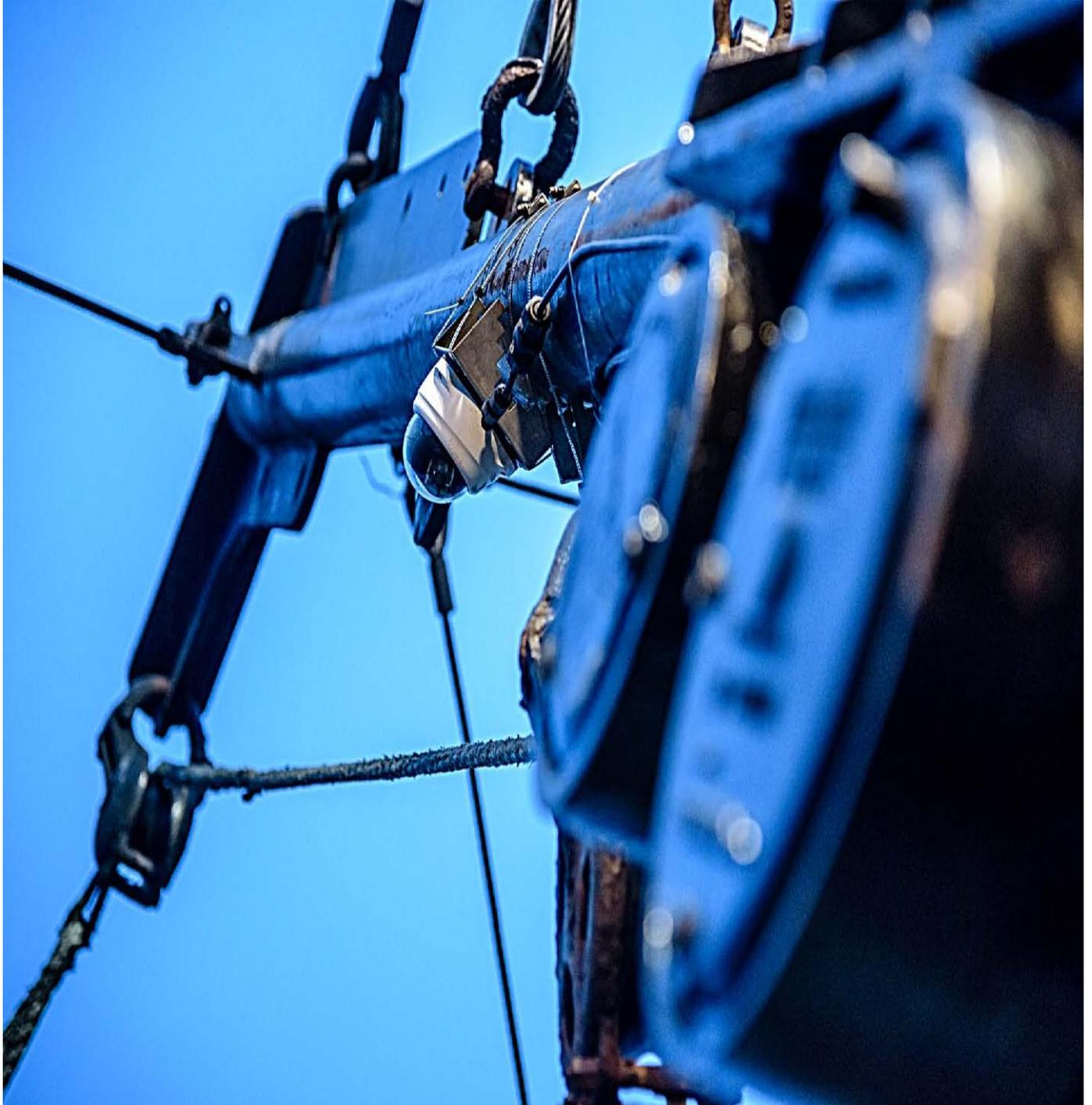
- 2017 Groundfish Collective report (upload)
- Photos for use:
 - a. Must include copyright © David Hills Photography
 - b. Use rights exclude third party usage (cannot be repurposed without explicit authorization)
 - c. <https://tnc.box.com/s/jyks7mmnfue4gvspv37bjsa4bhjdkw5x>
 - d. <https://tnc.box.com/s/2g7h48t6vky2z kf4q3tp2q1ryohpjsxz>

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Electronic Monitoring in the West Coast Groundfish Fishery

Summary Results from the California Groundfish Collective
Exempted Fishing Permit Project 2015-2016

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