Northern Gulf of Maine Scallop Camera Monitoring Project 2019

Project Overview

Develop a robust program design that will inform the development of a camera monitoring option within the Northern Gulf of Maine scallop fleet.

Test the effectiveness and efficiency of utilizing cameras to independently collect data.

Project Objectives

Proof of Concept

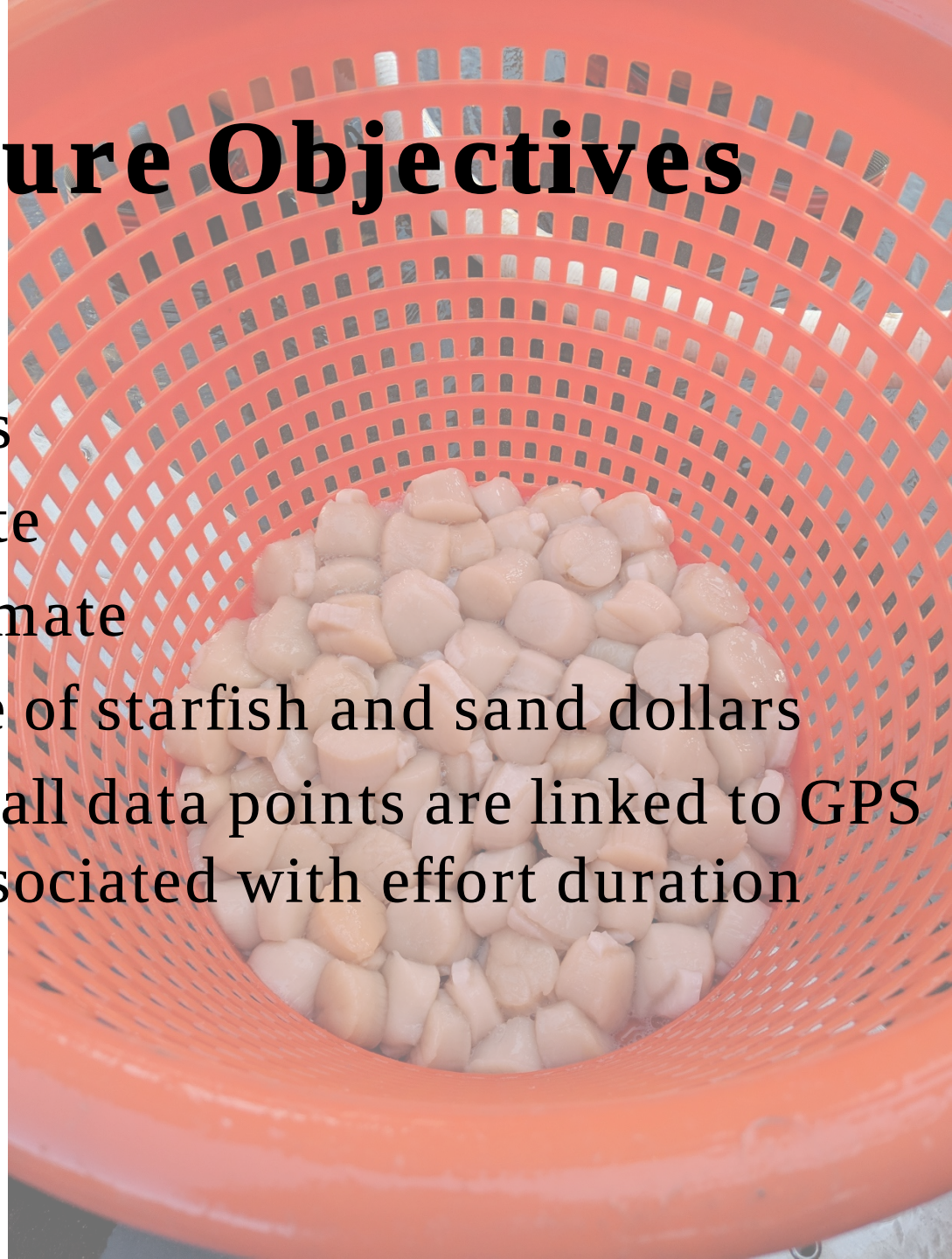
- One-month season
- Centrally located in Gloucester
- Utilize 3 boats, all home ported in Maine

Program Design

- Include partners who collect data, utilize data for science, and utilize science for management.
- Learn from past experiences
- Ensure tasks for on the boat were not overly burdensome on the participants

Data Capture Objectives

- Groundfish counts
- Scallop shell heights
- Kept scallop estimate
- Discard scallop estimate
- Presence or absence of starfish and sand dollars
- Fishing effort data- all data points are linked to GPS /time stamp and associated with effort duration



Custom Equipment

Vessel Monitoring Plans

Unique to Each Vessel and includes:

- ✓ Vessel information
- ✓ Project information
- ✓ Specific catch handling requirements
- ✓ Vessel layout diagram
- ✓ Camera system specifics
- ✓ Screen grabs of camera views
- ✓ Support information
- ✓ Change history

Experimental Electronic Monitoring for The Northern Gulf of Maine Scallop Fishery: Vessel Specific Monitoring Plan

Vessel information:

Vessel Name	
Hull Number	
Permit Number	
Home Port	
Vessel Owner	
Vessel Operator	
Vessel Contact	
VMP Version	

Program Goals: Explore the use of EM to collect data for the Northern Gulf of Maine Scallop Fishery

1. Explore methods for collecting data onboard NGOF scallop vessels including EM system design, installation and operation, catch handling operations and video review operations.
2. Lay groundwork for utilizing EM as a data collection tool in NGOM Scallop
3. Asses the ability for EM to collect useful data in NGOM Scallop.

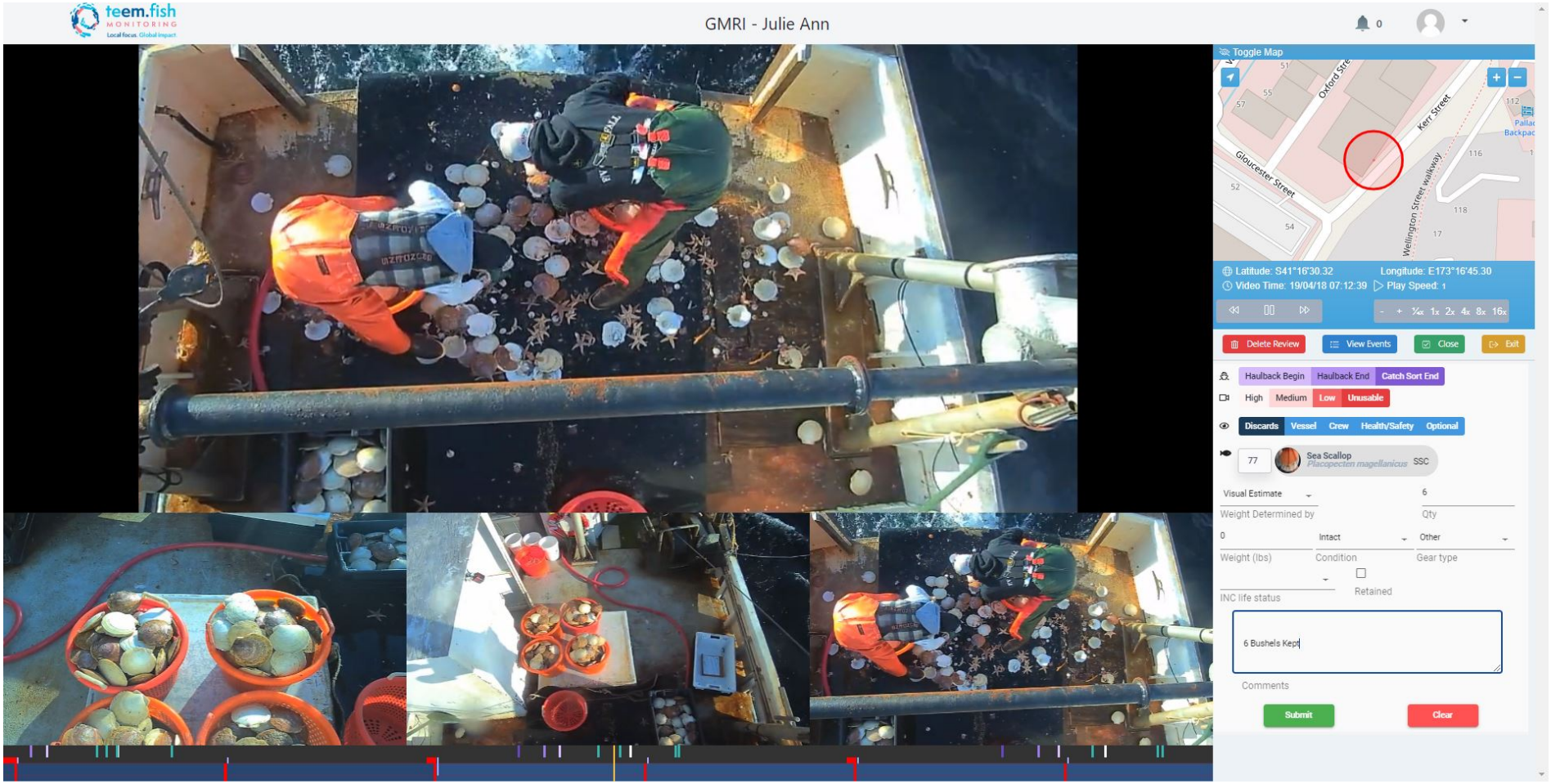
Data collection objectives:

1. Obtain counts all groundfish catch by species
2. Obtain volumetric estimate of kept and discarded scallop
3. Obtain shell height measurements of kept and discarded scallops
4. Document the presence or absence of san dollars and starfih in catch

Catch Handling:

1. Vessel will pick all scallops into bushel baskets in view of the camera. Scallops will be sorted by kept or discarded either:
    a. At the time of initial picking
    b. During cutting, where discard scallops will be dropped into baskets in view of the camera. Baskets of discarded scallops will be dumped as they become full at the shucking window
2. A target of 100 kept scallops should be measured per tow
3. A target of 100 discarded scallops should be measured per tow

Example Video



The Numbers

- 3 vessels, ~7% of all NGOM active vessels
- 40 trips, ~16% of all NGOM scallop trips
- 199 hauls
- 1,254 kept bushels
- 135 discarded bushels
- 527 groundfish
- 400 non-groundfish
- 5,764 kept scallops measured (~144 per trip)
  - Average shell height: 130mm
- 613 discarded scallops measured
  - Average shell height: 42mm

Groundfish Bycatch

Trip	Groundfish	Windowpane	Yellowtail	Winter	Plaice	Haddock
1	16	12	4	0	0	0
2	5	1	4	0	0	0
3	35	12	14	7	2	0
4	13	2	10	1	0	0
5	11	1	5	4	1	0
6	15	5	8	1	1	0
7	12	1	9	2	0	0
8	20	7	13	0	0	0
9	25	13	11	1	0	0
10	9	4	3	2	0	0
11	10	5	2	2	0	1
12	20	9	6	4	1	0
13	18	3	8	7	0	0
14	9	2	5	2	0	0
15	32	4	24	4	0	0
16	21	2	17	2	0	0
17	14	4	8	2	0	0
18	5	1	4	0	0	0
19	8	3	3	2	0	0
20	8	1	5	2	0	0

Trip	Groundfish	Windowpane	Yellowtail	Winter	Plaice	Haddock
21	9	3	3	3	0	0
22	13	3	9	1	0	0
23	6	2	4	0	0	0
24	9	0	5	4	0	0
25	11	2	6	3	0	0
26	19	2	12	5	0	0
27	14	1	8	5	0	0
28	2	2	0	0	0	0
29	23	10	13	0	0	0
30	8	4	3	1	0	0
31	2	0	1	1	0	0
32	10	1	8	1	0	0
33	11	5	6	0	0	0
34	0	0	0	0	0	0
35	5	2	1	2	0	0
36	10	4	5	1	0	0
37	7	3	4	0	0	0
38	26	11	14	0	1	0
39	23	6	16	1	0	0
40	14	4	8	2	0	0
TOTAL	527	157	288	75	6	1

Takeaways

- EM can be a useful tool to collect data from scallop vessels including:
  - Counting Groundfish
  - Measuring scallop shells
  - Estimating kept and discarded scallops
  - Collecting effort information
  - Anecdotal data collection (for example, sand dollars)
- Some catch handling requirements are needed to obtain quality data
- More work is needed to fine tune program

Lessons Learned

Measuring Board Distance

Measuring Board Glare

Lessons Learned

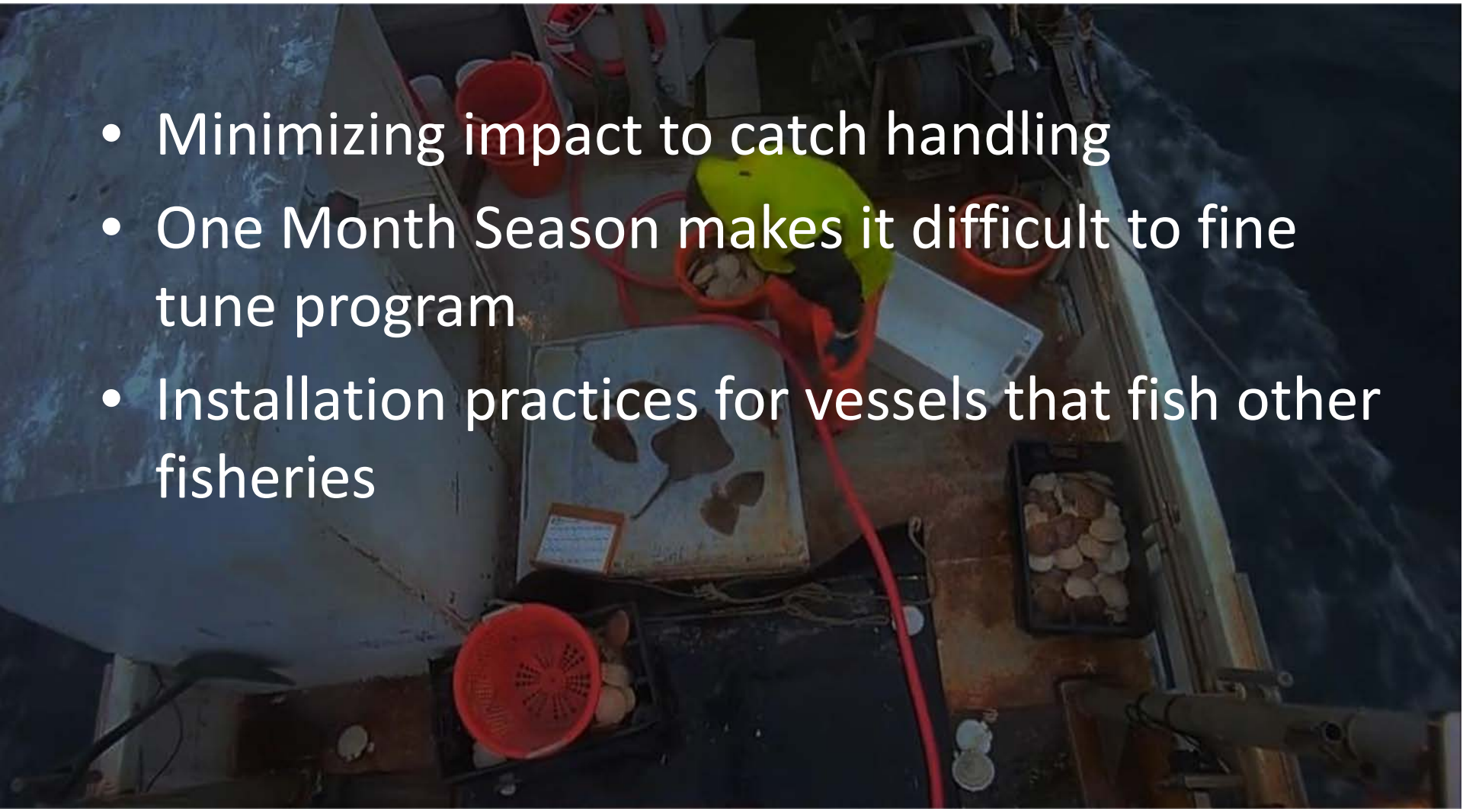
VMP protocols- Fish Sorting

Difficult

Better

Best

Continued Challenges



- Minimizing impact to catch handling
- One Month Season makes it difficult to fine tune program
- Installation practices for vessels that fish other fisheries

Moving Forward

- Review and refine data collection objectives
- Strengthen VMP's with refined catch handling requirements
- Stronger zoom lens
- Polarized filters on lens and new measuring boards
- Installation adjustments
- Collaboration with science and management

Acknowledgements

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