Science, Service, Stewardship

Application and Results of Two Approaches for Electronic Monitoring

Documenting and Estimating Catch on Commercial Fishing Vessels in the Northeast

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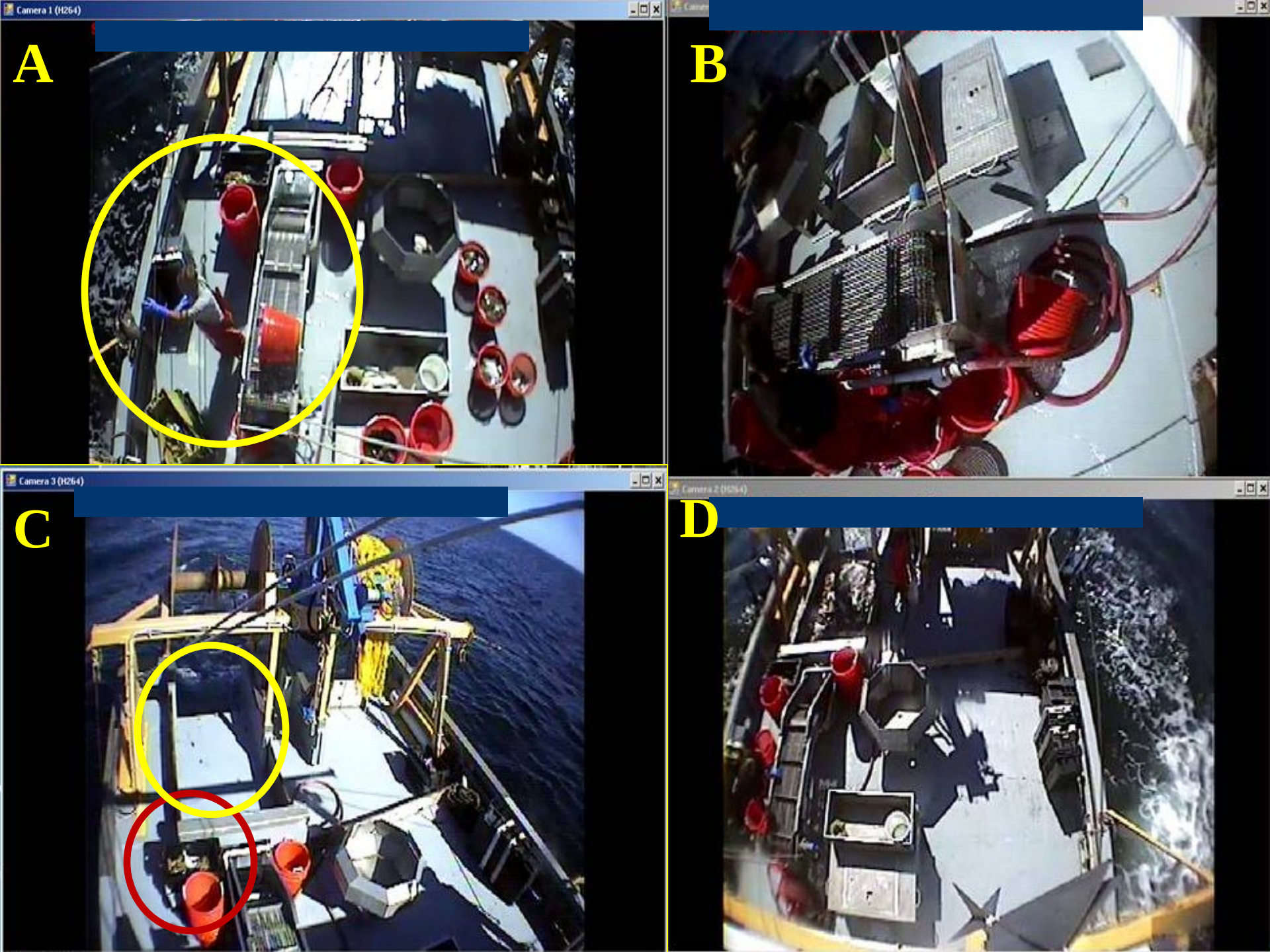
Testing of Two EM Models (Phase III)

Maximized Retention

- All catch retained with the exception of "allowable discards"
- All discarding (at discard control points) recorded by the captain and verified by EM (haul level recording)
- Dockside monitoring component
- EM used to monitor discard compliance and catch stowage

Discard Audit

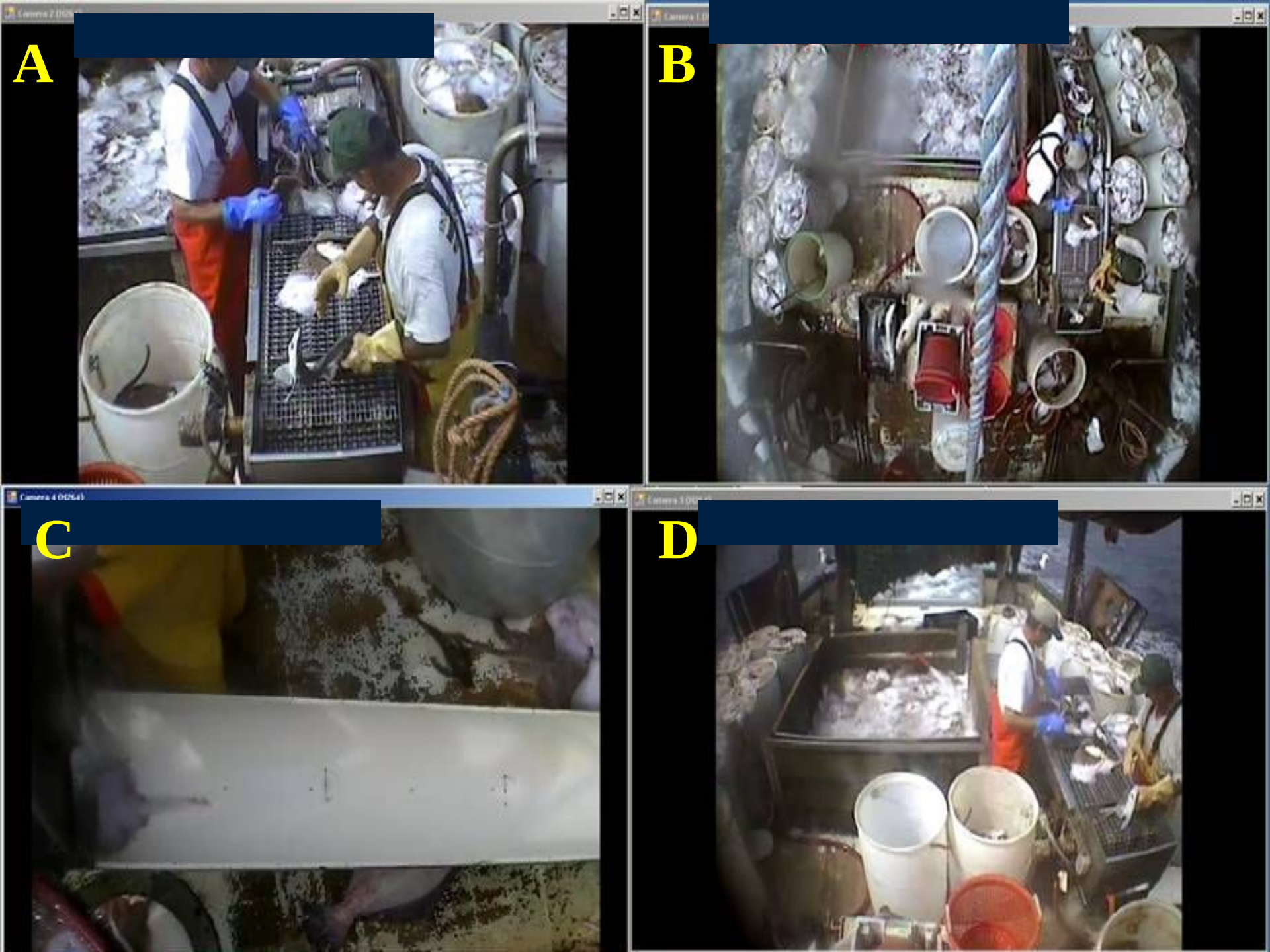
- Industry reported data (count and/or weight and species identification) of groundfish discards
- Structured catch handling and discard control points
- EM used to verify industry-reported data


Camera 1 (H264)
A
B
Camera 3 (H264)
C
D

Electronic Monitoring in the Northeast

Video Footage of Two Monitoring Approaches

By the Fisheries Sampling Branch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D

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Preliminary Results

Measurable Variables	Maximized Retention	Discard Audit
Number of Vessels	• 1 trawl (conveyor) • 1 gillnet	• 2 trawl (conveyor) • 1 gillnet
Number of Trips	• 8 trips (21 hauls)	• 91 trips (266 hauls)
Image Quality (medium to high)	• 5 out of 8 trips	• 116 of 266 hauls
Review Ratio Average	• 0.42 hrs	• 1.78 hrs (trawl) • 0.5 hrs (gillnet)
Data Retrieval Time	• 0.25 – 1 hrs • 0.43 hrs (average)	• 0.25 – 1.25 hrs • 0.87 hrs (average)
Data Turnaround Time	• 2 – 11 days • 5 days (average)	• 37% 0 – 10 days • 52% 11 – 20 days • 4% > 30 days
Unmarketable Catch Landed (per trip)	• 8 – 553 lbs	N/A
DSM Processing Time (per trip)	• 0.2 – 1.2 hrs	N/A
Non-control Point Discard	• 2	• 58
Catch Removed from View	• 2	• 3
Not Sorting Groundfish During Processing	N/A	• 157

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Preliminary Results (Data Alignment)

Species	# of Count Comparisons	Log Count	EM Count	Count Difference	# of Weight Comparisons	Log Weight (lbs)	EM Weight (lbs)	Weight Difference (lbs)	% Difference
American plaice flounder	4	0	6	-6	5	0	2.3	-2.3	-100%
Atlantic cod	1	0	1	-1	-	-	-	-	-
Ocean pout	7	2	7	-5	3	2.1	2.7	-0.6	-22.2%
Red/white hake	92	1,595	2,895	-1,300	-	-	-	-	-
Windowpane flounder	104	10,574	12,303	-1,729	79	4,034.7	5,709.8	-1,675.1	-29.3%
Winter flounder	91	1,071	1,423	-352	72	510.3	814.2	-303.9	-37.3%
Yellowtail flounder	40	204	351	-147	20	50.8	80.4	-29.6	-36.8%
Total flounder	104	11,813	14,304	-2,491	-	-	-	-	-
Totals	**443**	**25,259**	**31,290**	**-6,031**	**179**	**4,597.9**	**6,609.4**	**2,011.5**	**-30.4%**

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Overarching Themes

- Study employed a single vendor to test specific objectives and is therefore not necessarily representative of the full utility of EM (not a research and design contract)
- Intricacies associated with the integration of a new data stream into current data structure
- Comprehensive monitoring program utilizing the most appropriate tool to collect specific data elements

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Overarching Themes

- In order to be effective, EM program design, development, and implementation needs to be a collaborative effort, incorporating the fishing industry, scientists, and fishery managers (inclusive program with clearly-defined goals)
- When supplemented by other traditional data collection monitoring tools, EM may be an effective means to monitor fisheries
- A supportive and collaborative process is essential to support the industry in the collection and documentation of industry-reported data

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EM Study Reports

(http://www.nefsc.noaa.gov/fsb/)

Phase I Report

- *2010 Electronic Monitoring System Annual Report (Aug 2011)*

Phase II Report

- *Weight Estimation and Species Identification Technical Report (Sept 2012)*

Phase III Report

- Technical summary of data collected in Phase III (testing of two approaches)
- Examination of EM models tested (retention and discard audit)
- Sector operational guide and cost considerations