

Table 3. Detailed Descriptive Display of EM Alternatives

Component	ALTERNATIVES		
	1 Status Quo: Human Observers Estimate Discard	2 Camera Recordings Used to Estimate Discard	3 Logbooks Use to Estimate Discard, with Camera Audits
Compliance Monitoring Basic Provisions			
Discard Documentation Technology	Observers	Observers with Vessel Option to Use Cameras	
Documentation Coverage	100%	100% of all IFQ trips must either have observer or cameras	
Video Reading Protocols	None	Option A: 100% (census). Option B: Subsample Video (% to review must be developed)	Audit logbook (intensity varies based on vessel's compliance history)
Eligibility For Camera Use	N/A	Vessel in good standing and has approved equipment and operational plan certifications. <u>Initial eligibility criteria:</u> 1. Limited entry groundfish trawl permit 2. Quota share permit 3. No IFQ deficits 4. No civil penalties related to fishing activity exceeding a certain amount 5. Schematic and Description of NMFS approved Individual Vessel Monitoring Plan (IVMP) a. IVMP unique for each vessel b. Multiple IVMPs included if submitted by group of vessels 6. Self-Governing Plan (if applicable, not required) a. Data Delivery and Analysis (DDA) specifications b. submitted by either a group of vessels or an individual vessel <u>Continued eligibility:</u> 1. Participants must be in compliance with their IVMP 2. Demonstrate proper documentation of the discards in logbooks or on video 3. No civil penalties related to fishing activity exceeding a certain amount within the time period of EM use	

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Eligibility For Camera Use (continued)	N/A	<p><u>Requires application to NMFS to use EM, could include:</u></p> <ol style="list-style-type: none"> 1. Operational Informational information. <ol style="list-style-type: none"> a. Installation by certified EMS Provider b. EMS service provider responsibilities c. Data Confidentiality Standards d. Data Storage and Delivery Standards e. EMS Coverage Requirements f. Monitoring Requirements g. Vessel Responsibilities 2. Data Sources <ol style="list-style-type: none"> a. Digital Camera(s) b. Winch Sensors c. Hydraulic Sensors d. Log Book e. VMS f. GPS 3. EM Data Standards <ol style="list-style-type: none"> a. Secure Watertight Control Box Data Storage b. Encrypted Data c. Storage Standards d. Date and Time Stamp and Counter e. Digital File Format f. Minimum Frame Rate g. Minimum Resolution h. Accepted Delivery Methods i. Time Frames j. Color Optics k. Lighting Standards l. Power Supply Standards 	

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Discard Requirements	<p>Discard at will unless required to retain</p> <ul style="list-style-type: none"> • May discard any species unless regulations require you to retain them • May discard catch share species, non-catch share species • May discard non-groundfish • Allow selective discard of trash, mud coral, etc. • Require selective discards of prohibited species; • Require discards of ESA and MMPA species (protected species). 	<p>Option A: Maximized Retention</p> <ul style="list-style-type: none"> • No selective discard for catch share species, non-catch share groundfish species • No selective discard for non-groundfish species • Allow selective discard of trash, mud coral, etc. • Require selective discards of prohibited species (except whiting trips); • Require selective discards of ESA and MMPA species (i.e., protected species). • Non-selective discard for e.g., safety, "bleeding net", zipper accidentally opened, fish came off hook, gilled in net <p>Option B: Optimize Retention of Catch Share Species with Limited discards. Different options may be selected for different sectors/gears (discard sub options are not mutually exclusive; all species approved for discard would need to be verifiable with cameras)</p> <p>Subopt 1: flatfish Subopt 2: lingcod & sablefish Subopt 3: non-rockfish groundfish Subopt 4: spp verifiable with cameras Subopt 5: all nongroundfish spp</p> <ul style="list-style-type: none"> • Allow selective discard of trash, mud coral, etc. • Require selective discards of prohibited species (except whiting trips); • Require selective discards of ESA and MMPA species (i.e., protected species). • Non-selective discard for e.g., safety, "bleeding net", zipper accidentally opened, fish came off hook, gilled in net <p>Option C - Discard At Will (Status Quo)</p> <ul style="list-style-type: none"> • May discard any species unless regulations require you to retain them • May discard catch share species, non-catch share species • May discard non-groundfish • Allow selective discard of trash, mud coral, etc. • Require selective discards of prohibited species (except 	
<u>Vessel Operation Provisions</u>			
Observer Exemption Process	None	NMFS Application and Approval Process	

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EM Vessel Operational Plan - Individual Vessel Monitoring Plans (IVMP)	No plan required	<p>EM Operational Plan Required</p> <p>Potential categories of information in an IVMP:</p> <ul style="list-style-type: none"> a) Type of system b) Hardware c) Software d) Emergency protocols e) Back-up equipment use protocols f) Catch handling protocols g) Layout of vessel h) Screen shots of all camera views i) Number of cameras needed with placement specifications j) Care and maintenance of the EM system k) Types of sensors and data for sensors to capture l) Download/maintenance schedule m) Logbook format (electronic or paper) n) Tamper Resistant/Taper Evident o) Number and Location of Digital Cameras p) Lighting Locations (Stern, Deck, Discard Shoot, etc.) q) Bridge Mounted Computer Interface/Monitors r) GPS Receiver s) Winch Sensors t) Hydraulic Pressure Transducers u) Power Supply / Backup v) Wire Runs w) Geo Fencing (NMFS supplied) x) System's Check Certification y) Data logger 	
EM Vessel Operational Plan - IVMP Expiration	No plan required	<p>Option A – No Expiration unless modifications are made</p> <ul style="list-style-type: none"> • Approval of plans by NMFS • Plan modification provisions: (NMFS to decide how this is done) <ul style="list-style-type: none"> 1. EM Provider and vessel operator provisions – changes that do not need re-approval by NMFS (e.g. camera position changes) 2. NMFS provisions - changes that trigger the need for re-approval by NMFS (e.g. operator will use a different vessel) <p>Option B – Annual Expiration or if modifications are made Same as Option A but with annual expiration</p>	

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Declaration of EM Use	No declaration	<p>Option A - Annual Declaration Use EM all year</p> <p>Option B - Declaration for Intermittent Use For the coming year, participants must indicate in which months, if any, it will use EM and in which months, if any, it will use an observer. (e.g. quarterly)</p> <p>Option C - Trip by Trip Basis Vessel and the observer provider would need to work out when observers may be available on a per trip basis.</p> <p>Exception for Emergency Situation for Option A and B For example, camera broke so need an observer tomorrow, vice versa</p>	
<u>Equipment and Protocol Provisions</u>			
EM Equipment Requirements	None	Options for specification of technology hardware, data formats, etc. including consideration for changes through time.	
Data Transfer Process	Completed by observers	<p>Video data transfer, electronic/paper logbook, and data logger information will be developed during implementation of the program. Some of this information would be disclosed in an IVMP.</p> <p>Includes secure transfer for data and chain of custody requirements.</p> <p>Options (not mutually exclusive)</p> <ul style="list-style-type: none"> • Crew • Catch monitor • PSMFC • EM Provider • Enforcement 	
Video and Data Processing and Analysis	None	<p>Video reviewers (not mutually exclusive):</p> <p>Option A -NMFS</p> <p>Option B -PSMFC</p> <p>Option C - EM Provider</p>	
<u>Spatial Variation for High Bycatch Areas</u>		<p>Option A - No special provisions</p> <p>Option B - fishing activity in areas that are likely to have lower bycatch could be monitored with EM rather than using observers; no EM in high bycatch areas</p> <p>Option C - Under this option, if you chose to fish in a high bycatch area, a higher level of EM review may be required</p>	

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<u>Adaptive or Phased Implementation</u>		<p>Option A. None</p> <p>Option B. Use EFPs to test final Council policy, prior to full regulatory implementation.</p> <p>Option C. Phase in by sector/gear.</p> <p>Option D. Phase in retention options over time.</p> <p>Options B-D are not mutually exclusive.</p>	