Preliminary Thoughts on Observer Functions and the Corresponding Abilities of Electronic Monitoring (Northwest Division Office of Law Enforcement(NW OLE), NOAA General Counsel Enforcement Litigation (NOAA GCEL), and Northwest Region (NWR))

Council staff asked various offices within NMFS to provide:

1. A list of
    a. the functions or data that you rely on and is currently provided by the observer program, and
    b. your initial thoughts about the ability of vessel based electronic monitoring to address those needs, and
2. A list of functions or needs not met by the current observer program which may be met by vessel based electronic monitoring.

The attached matrices were provided to facilitate response. This document contains the responses provided by the NW OLE, NOAA GCEL, and NWR as the preliminary thoughts of Dayna Matthews.

DRAFT

1. Midwater Trawl for Catcher Vessels Delivering At-sea

Central Assumptions Regarding Electronic Monitoring Hardware and Regulations
e.g. camera placement, hatch sensors, maximum retention regulations.
Tamper Proof System, Secure/Watertight Data Storage, Digital Cameras, Encrypted Data, Sensors, Deck/Stern Lighting, Bridge Monitor, GPS, VMS, Geo Fencing, E Log Book, Maximum Retention, Non Selective Discards only, Time and Area Restrictions, Video Analysis by SFD/PSMFC

Vessel Monitoring Plans (VMP): Each camera system application will have elements unique to the vessel (similar to the catch monitor plan for first receiver site licenses)

If cameras are deployed in lieu of observers, describe this fishery as a **Maximum Retention** (non selective discards only) / **Full Accountability Fishery** (regardless of why or how the discard happened), the vessel will be held accountable for the discard and deductions will be debited from IFQ vessel accounts.

Table 1.a Dayna Matthews' initial thoughts on ability of electronic monitoring to provide data/functions currently provided through 100% observer coverage for **midwater trawl for catcher vessels delivering at-sea**.

1. Functions and/or Data Provided by Current On-Board Observers/Compliance Monitor	2. Related Management Objective	3. Can be Provided by Electronic Monitoring?(Y/N)	4. If Electronic Monitoring =Yes Any comments in addition to central assumption?		5. If Electronic Monitoring = No or Presents Difficulty	
			4a. Comments on Camera or Other Coverage Required to Meet Need	4b. Type of Regulatory Modifications Needed	5a. Priority of Need.	5b. Alternative Adjustments
1.Compliance Monitoring		Yes	System configured with previous standards, i.e. EFP and PSMFC pilot. E logbook compatibility. Data analysis becomes responsibility of SFD and PSMFC. Data analysis: For now we go with the labor intensive strategy and employ software analysis techniques as they become available	Use Am 10 Draft as template, Update equipment specs to reflect upgrades in the technology. Use specs approval process to update technology specifications in the future		
2.Catch Accounting		Yes	Same as Compliance Monitoring. Data analysis, two models to consider; system used by Archipelago (labor intensive), software analysis being developed and tested by Alaska Science Center (minimum of 4 years to perfect). Others? For now we go with the labor intensive strategy and employ software analysis techniques as they become available	Same as Compliance Monitoring. Also will need regs or other administrative process to determine methodology for estimating discards, large and small, for deducting vessel accounts.		
3.Biological Sampling		No, Presume the pre-IFQ NW Science Center sampling program will continue				

Table 1.b. . Dayna Matthew's initial thoughts on other needs which electronic monitoring might meet, not currently met by 100% observer coverage.

1. What Else Can Vessel Based Electronic Monitoring Do to Meet Data and Monitoring Needs?	2. Comments on Camera or Other Coverage Required to Meet Need	3. Comments on type of Regulatory Modifications Needed
1.E Log Book. Much can be done to improve quality and timeliness of data	E Log book needs to be compatible with camera, i.e. timestamp and GPS. . E Log Books are an integral part of the Camera data audit system. Verification of randomly selected video against log book entries allows for audit procedure that reduces the need to review 100% of the video data. Log Book is a self reporting component that along with camera establishes trust and verification of the data.	Federal and state regs would need to be addressed. Regulations making groundfish log books a Federal Requirement. State long books will need to be modified for reporting discards and expanded specifications. Development/modification of the e-logbook will emulate same process used in creating e-ticket program.

2. Midwater Trawl for Catcher Vessels Delivering *Shoreside*

Central Assumptions Regarding Electronic Monitoring Hardware and Regulations
e.g. camera placement, hatch sensors, maximum retention regulations.
Tamper Proof System, Secure/Watertight Data Storage Digital Cameras, Encrypted Data, Sensors, Bridge Monitor, Deck/Stern Lighting, GPS, VMS, Geo Fencing, E Log Book, Maximum Retention, Non Selective Discards Only, Time and Area Restrictions, Video Analysis by SFD/PSMFC

Vessel Monitoring Plans (VMP): Each camera system application will have elements unique to the vessel.

If cameras are deployed in lieu of observers, describe this fishery as a **Maximum Retention** (non selective discards only) / **Full Accountability Fishery** (regardless of why or how the discard happened), vessel will be held accountable for the discard and deductions will be debited from IFQ accounts

Table 2.a Dayna Matthews' initial thoughts on ability of electronic monitoring to provide data/functions currently provided through 100% observer coverage for **midwater trawl for catcher vessels delivering shoreside**.

1. Functions and/or Data Provided by Current On-Board Observers/Compliance Monitors	2. Related Management Objective	3. Can be Provided by Electronic Monitoring?(Y/N)	4. If Electronic Monitoring =Yes Any comments in addition to central assumption?		5. If Electronic Monitoring = No or Presents Difficulty	
			4a. Comments on Camera or Other Coverage Required to Meet Need	4b. Type of Regulatory Modifications Needed	5a. Priority of Need.	5b. Alternative Adjustments
1.Compliance Monitoring		Yes	System configured with previous standards, i.e. EFP and PSMFC pilot. E logbook compatibility. Data analysis becomes responsibility of SFD and PSMFC.	Use Am 10 Draft as template, Update equipment specs to reflect upgrades in the technology. Use specs approval process to update technology specifications in the future		
2.Catch Accounting		Yes	Same as Compliance Monitoring. Data analysis, two models to consider; system used by Archipelago (labor intensive), software analysis being developed and tested by Alaska Science Center (minimum of 4 years to perfect). Others? For now we go with the labor intensive strategy and employ software analysis techniques as they become available	Same as Compliance Monitoring. Also will need regs or other administrative process to determine methodology for estimating discards, large and small, for deducting vessel accounts.		
3.Biological Sampling		No, Presume the pre-IFQ NW Science Center sampling program will continue			High Priority	Return to sampling model used prior to Catch Shares, ego: Observers deployed on a percentage basis, with data extrapolated across the fleet.

Table 2.b. . Dayna Matthews' initial thoughts on other needs which electronic monitoring might meet, not currently met by 100% observer coverage.

1. What Else Can Vessel Based Electronic Monitoring Do to Meet Data and Monitoring Needs?	2. Comments on Camera or Other Coverage Required to Meet Need	3. Comments on type of Regulatory Modifications Needed
1.E Log Book. Much can be done to improve quality and timeliness of data	E Log book needs to be compatible with camera, i.e. timestamp and GPS. . E Log Books are an integral part of the Camera data audit system. Verification of randomly selected video against log book entries allows for audit procedure that reduces the need to review 100% of the video data. Log Book is a self reporting component that along with camera establishes trust and verification of the data	Federal and state regs would need to be addressed. Regulations making groundfish log books a Federal Requirement. State long books will need to be modified for reporting discards and expanded specifications. Development/modification of the e-logbook will emulate same process used in creating e-ticket program.

3. **Bottom Trawl** (large and small footrope, including flatfish trawl)

Central Assumptions Regarding Electronic Monitoring Hardware and Regulations
e.g. camera placement, hatch sensors, maximum retention regulations.
Tamper Proof System, Secure/Watertight Data Storage Digital Cameras, Encrypted Data, Sensors, Bridge Monitor, Deck/Stern Lighting, GPS, VMS, Geo Fencing, E Log Book, Maximum Retention, Non Selective Discards Only, Time and Area Restrictions, Video Analysis by SFD/PSMFC

Vessel Monitoring Plans (VMP): Each camera system application will have elements unique to the vessel.

If cameras are deployed in lieu of observers, describe this fishery as a **Maximum Retention** (non selective discards only) / **Full Accountability Fishery** (regardless of why or how the discard happened), vessel will be held accountable for the discard and deductions will be debited from IFQ accounts

Table 3.a Dayna Matthew's initial thoughts on ability of electronic monitoring to provide data/functions currently provided through 100% observer coverage for **bottom trawl (large and small footrope, including flatfish trawl).**

1. Functions and/or Data Provided by Current On-Board Observers	2. Related Management Objective	3. Can be Provided by Electronic Monitoring ?(Y/N)	4. If Electronic Monitoring =Yes Any comments in addition to central assumption?		5. If Electronic Monitoring = No or Presents Difficulty	
			4a. Comments on Camera or Other Coverage Required to Meet Need	4b. Type of Regulatory Modifications Needed	5a. Priority of Need.	5b. Alternative Adjustments
1.Compliance Monitoring		Potentially Yes, but major issues still to be addressed, see comments in 5.	System configured with previous standards, i.e. EFP and PSMFC pilot. E logbook compatibility. Data analysis becomes responsibility of SFD and PSMFC.	Use Am 10 Draft as template, Update equipment specs to reflect upgrades in the technology. Use specs approval process to update technology specifications in the future	WE NEED PSMFC CAMERAS ON BOTTOM TRAWL VESSELS THIS SUMMER!!!! High Priority.	The issue is fishing at night. As yet, no system has proven to be effective in capturing video at night. One potential would be a species id camera/software system deployed in the net itself. A Potential application of the research being done by Alaska Science Center, but we are years away. Full retention regs, and no fishing at night gets us closer, but with no history on camera deployment on bottom trawl we are operating at a severe disadvantage.

1. Functions and/or Data Provided by Current On-Board Observers	2. Related Management Objective	3. Can be Provided by Electronic Monitoring ?(Y/N)	4. If Electronic Monitoring =Yes Any comments in addition to central assumption?		5. If Electronic Monitoring = No or Presents Difficulty	
			4a. Comments on Camera or Other Coverage Required to Meet Need	4b. Type of Regulatory Modifications Needed	5a. Priority of Need.	5b. Alternative Adjustments
2.Catch Accounting		Potentially Yes, but major issues still to be addressed, see comments in 5b	Same as Compliance Monitoring. Data analysis, two models to consider; system used by Archipelago (labor intensive), software analysis being developed and tested by Alaska Science Center (minimum of 4 years to perfect). Others?	Same as Compliance Monitoring. Also will need regs or other administrative process to determine methodology for estimating discards, large and small, for deducting vessel accounts.		This is where things break down. Cameras, to date have not proven adequate for species id let alone length and weight calculations. For trawl, passing under a camera using some type of measurement scale and thinking we are going to get an id is just not feasible at this time. Highly labor intensive which increases the cost significantly. We are just going to have to wait for software analysis to get us out of this hole when it comes to bottom trawl. And that only works if the video feed is of significant quality to make it work
3.Biological Sampling		No Presume the pre-IFQ NW Science Center sampling program will continue			High Priority	Return to sampling model used prior to Catch Shares, ego: Observers deployed on a percentage basis, with data extrapolated across the fleet.

Table 3.b. . _Dayna Matthews' initial thoughts on other needs which electronic monitoring might meet, not currently met by 100% observer coverage.

1. What Else Can Vessel Based Electronic Monitoring Do to Meet Data and Monitoring Needs?	2. Comments on Camera or Other Coverage Required to Meet Need	3. Comments on type of Regulatory Modifications Needed
1.E Log Book. Much can be done to improve quality and timeliness of data	E Log book needs to be compatible with camera, i.e. timestamp and GPS. . E Log Books are an integral part of the Camera data audit system. Verification of randomly selected video against log book entries allows for audit procedure that reduces the need to review 100% of the video data. Log Book is a self reporting component that along with camera establishes trust and verification of the data	Federal and state regs would need to be addressed. Regulations making groundfish log books a Federal Requirement. State long books will need to be modified for reporting discards and expanded specifications. Development/modification of the e-logbook will emulate same process used in creating e-ticket program.
3. Or what cameras can't do. Halibut viability.	Cameras cannot do halibut viability. Option 1. All halibut considered dead under the camera option. Option 2. Long-term potential for developing a different type of halibut viability model.	Need for a research study to develop new halibut viability model.

4. Vessels Participating in Trawl Rationalization Program Using Fixed Gear

Central Assumptions Regarding Electronic Monitoring Hardware and Regulations
e.g. camera placement, hatch sensors, maximum retention regulations.
Tamper Proof System, Secure/Watertight Data Storage Digital Cameras, Encrypted Data, Sensors, Bridge Monitor, Deck/Stern Lighting, GPS, VMS, Geo Fencing, E Log Book, Maximum Retention, Non Selective Discards Only, Time and Area Restrictions, Video Analysis by SFD/PSMFC

Vessel Monitoring Plans (VMP): Each camera system application will have elements unique to the vessel.

If cameras are deployed in lieu of observers, describe this fishery as a **Maximum Retention** (non selective discards only) / **Full Accountability Fishery** (regardless of why or how the discard happened), vessel will be held accountable for the discard and deductions will be debited from IFQ accounts

For fixed gear, we may only need full retention on IFQ species, or, Rockfish and Sablefish.

Table 4.a Dayna Matthew's initial thoughts on ability of electronic monitoring to provide data/functions currently provided through 100% observer coverage for **fixed gear vessels.**

1. Functions and/or Data Provided by Current On-Board Observers	2. Related Management Objective	3. Can be Provided by Electronic Monitoring ?(Y/N)	4. If Electronic Monitoring =Yes Any comments in addition to central assumption?		5. If Electronic Monitoring = No or Presents Difficulty	
			4a. Comments on Camera or Other Coverage Required to Meet Need	4b. Comments on type of Regulatory Modifications Needed	5a. Priority of Need.	5b. Alternative Adjustments
1.Compliance Monitoring		Yes, This is probably the best applicatio n for cameras, followed by at sea whiting.	System configured with previous standards, i.e. EFP, Alaska Science Center pilot, and PSMFC pilot. E logbook compatibility. Data analysis becomes responsibility of SFD and PSMFC.	Use Am 10 Draft as template, Update equipment specs to to reflect upgrades in the technology. Use specs approval process to update technology specifications in the future		
2.Catch Accounting		Yes	Same as Compliance Monitoring. Data analysis, two models to consider; system used by Archipelago (labor intensive), software analysis being developed and tested by Alaska Science Center (minimum of 4 years to perfect). Others? For now we go with the labor intensive strategy and employ software analysis techniques as they before available.	Same as Compliance Monitoring. Also will need regs or other administrative process to determine methodology for estimating discards, large and small, for deducting vessel accounts.		

1. Functions and/or Data Provided by Current On-Board Observers	2. Related Management Objective	3. Can be Provided by Electronic Monitoring ?(Y/N)	4. If Electronic Monitoring =Yes Any comments in addition to central assumption?		5. If Electronic Monitoring = No or Presents Difficulty	
			4a. Comments on Camera or Other Coverage Required to Meet Need	4b. Comments on type of Regulatory Modifications Needed	5a. Priority of Need.	5b. Alternative Adjustments
3.Biological Sampling		No			High Priority	Return to sampling model used prior to Catch Shares, ego: Observers deployed on a percentage basis, with data extrapolated across the fleet.

Table 4.b. . Dayna Matthew's initial thoughts on other needs which electronic monitoring might meet, not currently met by 100% observer coverage.

1. What Else Can Vessel Based Electronic Monitoring Do to Meet Data and Monitoring Needs?	2. Comments on Camera or Other Coverage Required to Meet Need	3. Comments on type of Regulatory Modifications Needed
1.E Log Book. Much can be done to improve quality and timeliness of data	E Log book needs to be compatible with camera, i.e. timestamp and GPS. . E Log Books are an integral part of the Camera data audit system. Varificaion of randomly selected video against log book entries allows for audit procedure that reduces the need to review 100% of the video data. Log Book is a self reporting component that along with camera establishes trust and verification of the data	Federal and state regs would need to be addressed. Regulations making groundfish log books a Federal Requirement. State long books will need to be modified for reporting discards and expanded specifications. Development/modification of the e-logbook will emulate same process used in creating e-ticket program.
Or what cameras can't do. Halibut viability.	Cameras cannot do halibut viability. Option 1. all halibut considered dead under the camera option. Option 2. Long-term potential for developing a different type of halibut viability model.	Need for a research study to develop new halibut viability model.