



NOAA
FISHERIES

Electronic Technologies in U.S. Fisheries



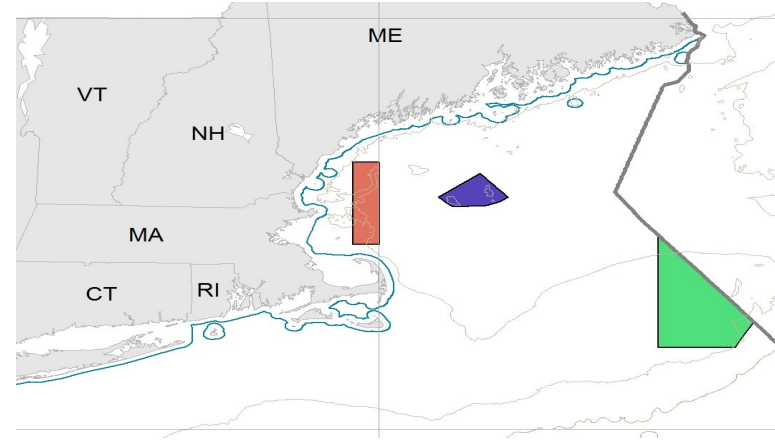
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Council Member Training

Vessel Monitoring System (VMS) Program in U.S. Fisheries

Program Basics

- > 4,000 vessels
- Satellite & cellular-based communications
- Operates all the time, in real-time
- Location, hail in/out, catch reporting
- Data confidentiality requirements



How it is used

- Monitoring closed areas and transiting
- Effort and quota monitoring
- Validating other data sources
- Port arrivals for sampling programs



Technologies for Observer Data Collection

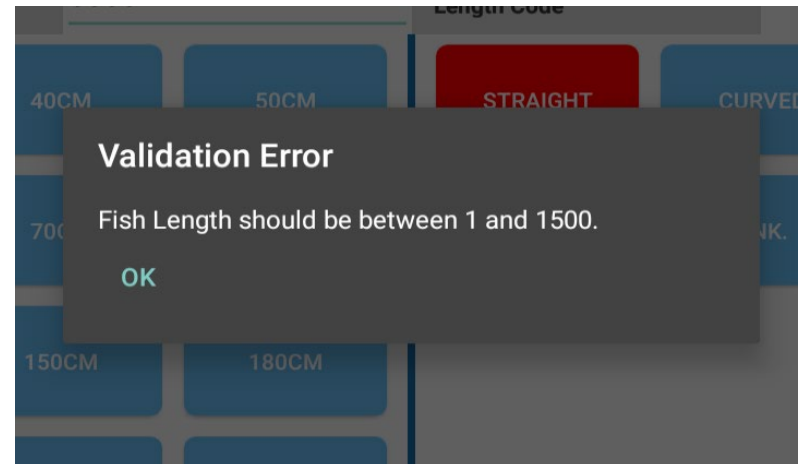
Existing Technologies

- Efficient, timely, and legible
- Customization and adaptation
- Auto-calculation and sync to databases
- Front-end error checks and validation
- **2021 - Northwest Center went paperless**



Future Development

- Barcoding and GPS integration
- Application-driven sampling
- Bluetooth with scales
- Species ID and image collection



Electronic Reporting (ER) in U.S. Fisheries

Commercial and For-Hire Fisheries

- Long history of paper programs
- Different requirements and participation
- Most seafood processors and dealers
- ~6,000+ Federally-permitted vessels

Expanded Programs in 2023

- NE lobster mandatory ER April 1st (1,400 vessels)
- NE Electronic Vessel Trip Reporting (eVTR) Data Model
- WC E-logbooks groundfish non-trawl sectors – Jan 1, 2023

Future Programs/Opportunities

- HMS Commercial and charter/headboat E-logbooks
- SE Commercial shrimp?
- One-stop/coast-wide ER integration

NOAA Form No. 88-36
CDD No. 06-0-0112
Expires 1/31/2013

FISHING VESSEL TRIP REPORT

VTR Serial Number: 12345678

1. Vessel Name		2. USCG Documentation or State Registration		3. NMFS Vessel Permit Number	
4. Date and Time Sailed					
Date: MM / DD / YY			Military Time: HH:MM		
5. Date and Time Landed					
Date: MM / DD / YY			Military Time: HH:MM		
6. Trip Type: check one box and record the number of crew including the captain. Party/Charter must also include the number of anglers.					
<input type="checkbox"/> Commercial: # of Crew		<input type="checkbox"/> BSA/EFP: # of Crew		<input type="checkbox"/> Party: # of Crew	
<input type="checkbox"/> Charter: # of Anglers		<input type="checkbox"/> Party: # of Anglers		<input type="checkbox"/> Charter: # of Anglers	
<i>COMPLETE A NEW FORM FOR EACH DIFFERENT CHART AREA, GEAR TYPE OR MESHING SIZE USED ON A TRIP.</i>					
7. Gear Code	8. Mesh/Ring Size	9. Gear Quantity	10. Gear Size	11. Fishing Depth (Fathoms)	12. Number of Hooks
13. Chart Area		14. Latitude		15. Longitude	
16. Tow / Soak Time		DEGREES MINUTES		DEGREES MINUTES	
17. Species Code		18. Kept		19. Discarded	
20. Dealer Permit Number		21. Dealer Name		22. Date Sold MM/DD/YY	
23. Offloading Port for each species		24. City		25. State	
26. Operator Permit Number		27. Operator Name		28. Operator Signature	
29. Date Signed MM/DD/YY					

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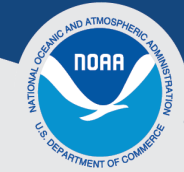
AK-eLandings







NE-Fish Online



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U.S. Electronic Monitoring Programs

Electronic monitoring (EM) is being piloted and implemented across the U.S. to expand and improve fisheries-dependent data collection, while reducing costs and increasing the timeliness of information. EM is used to audit logbook data, monitor compliance with discard requirements, and collect information on discards and bycatch. The programs on this map are listed in three categories: Operating under regulations; operating under an exempted fishing permit (EFP) and/or being developed by a Fishery Management Council (FMC); and operating as a pilot project.

For more information, visit fisheries.noaa.gov/national/fisheries-observers/electronic-monitoring.

Alaska

Under Regulation

- Bering Sea and Aleutian Island (BSAI) Non-Pollock Trawl Catcher/Processor (C/P)
- Bering Sea Pollock Trawl C/P and Motherships
- Central Gulf of Alaska Rockfish Trawl C/P
- BSAI Pacific Cod Longline C/P
- Small Boat Fixed Gear (Longline and Pot)
- Halibut Deck Sorting Trawl C/P

Under FMC Development or EFP

- Pollock Trawl Catcher Vessels

West Coast

Under FMC Development or EFP

- Whiting Mid-Water Trawl
- Fixed Gear IFQ
- Non-Whiting Mid-Water Trawl
- Groundfish Bottom Trawl

Pilot Project

- Nearshore Rockfish

Pacific Islands

Pilot Project

- Pelagic Longline—Hawaii Deep and Shallow Set

Greater Atlantic

Under FMC Development or EFP

- Northeast Multispecies
- Herring Mid-Water Trawl

Pilot Project

- Northern Gulf of Maine Scallop
- Northeast Multispecies For-Hire

Atlantic HMS

Under Regulation

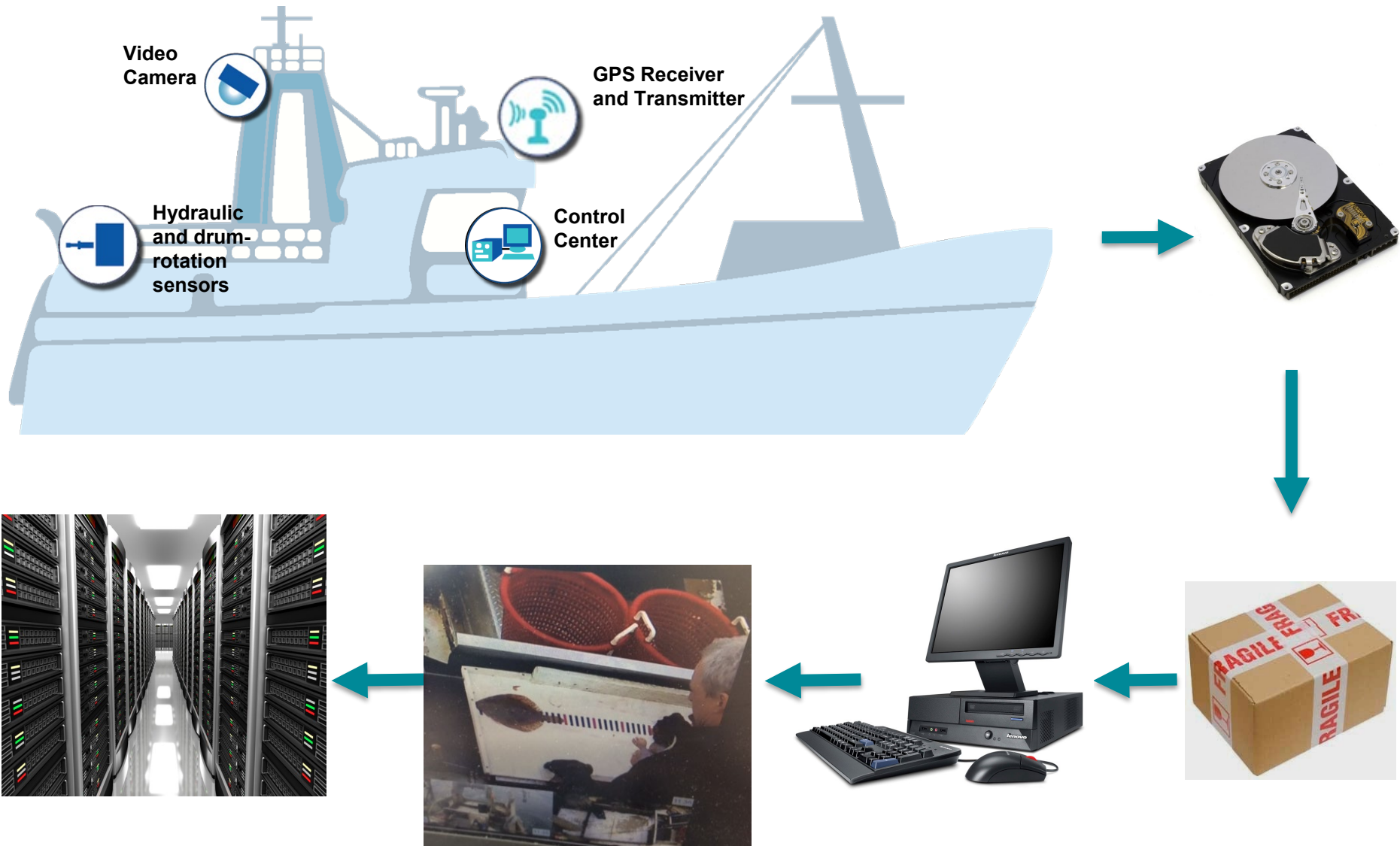
- Pelagic Longline

Southeast

Pilot Project

- Snapper-Grouper
- Gulf of Mexico Shrimp
- Menhaden

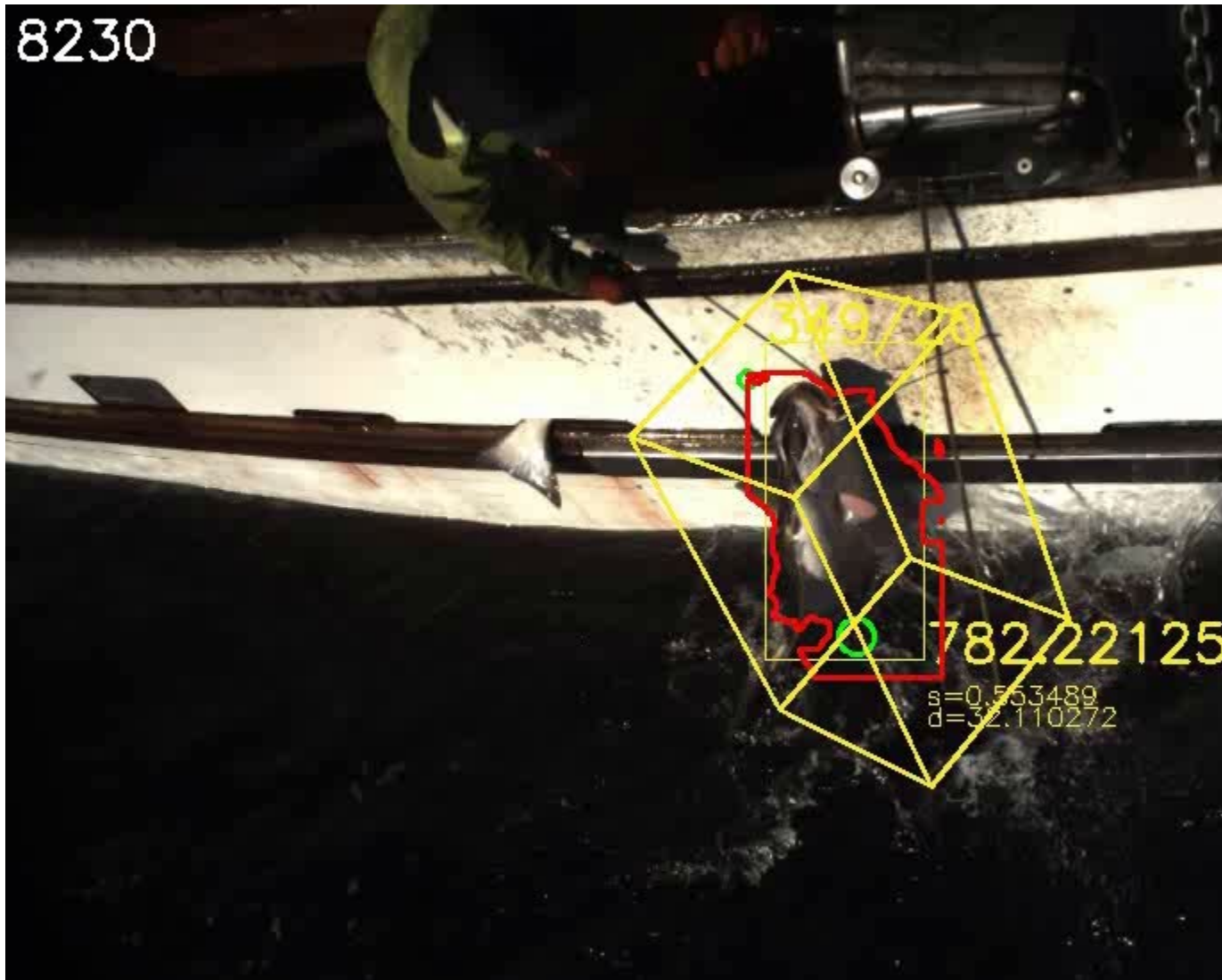
EM Data Collection & Review Process



EM Video Review – Example 1



EM Video Review – Example 2



Applications of Electronic Monitoring

Scientific data collection – support stock assessments, bycatch reporting, ecosystem research

Management – real-time monitoring (individual vessel quotas, catch limits), auditing logbook reporting

Compliance monitoring – verify catch retention, access to closed areas, increased accountability

Additional Uses

- sustainability certifications
- improved traceability
- value-added products
- data monetization



Electronic Monitoring Challenges

Onboard vessel – Catch handling & camera obstructions

Costs & logistics – Transmission, review, and storage

Regulatory – Writing flexible regulations

Analytical – Data review, applying artificial intelligence

Policy development

- Confidentiality and privacy
- Data access and use
- Remote video access and review

Other – Outreach and communication



ET Policies Completed

- NMFS ET Policies
 - National Electronic Technologies Policy Directive (04-115) - Effective 2013, Renewed 2019
 - EM Cost Allocation Procedural Directive (04-115-02) - Effective 2019
 - EM Third Party Data Retention Procedural Directive (04-115-03) - Effective 2020
 - Information Law Application for Data and Supporting Guidance in EM Programs (04-115-04) - Effective 2022
- EM Federal Record Retention Schedule (DAA-0370-2020-0001) - Effective 2020 (Published by the National Archives and Records Administration (NARA))

ET Actions Completed

Regional ET Implementation Plans (2015-2022)

- Initiated in 2015, format revised in 2021 for 2021-2025 plans
- Many overlapping challenges among the regions and Atlantic HMS, but also distinct priorities and approaches

National EM Workshops (2019 and 2020)

- Report and video recordings from workshops

Communication and Outreach

- [NOAA Fisheries ET Website](#)
- [EM Story Map](#)

Electronic Technologies: Road Ahead

- NOAA Fisheries Technical Memo – Examines the potential of EM to address gaps in protected species bycatch data collection
 - Expected to be released by early in 2024
- Using EM data in stock assessments/integrating observer and EM data – will be developed into a technical memo
- EM program development best practices and/or technical standards – no timeline developed yet
- Proposed rulemaking on data confidentiality under the MSA (expected to publish by the end of 2023)
 - Aim to clarify MSA provisions on data confidentiality, which will impact various data collection methods

Questions?

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Procedural Directive on Cost Allocation for EM

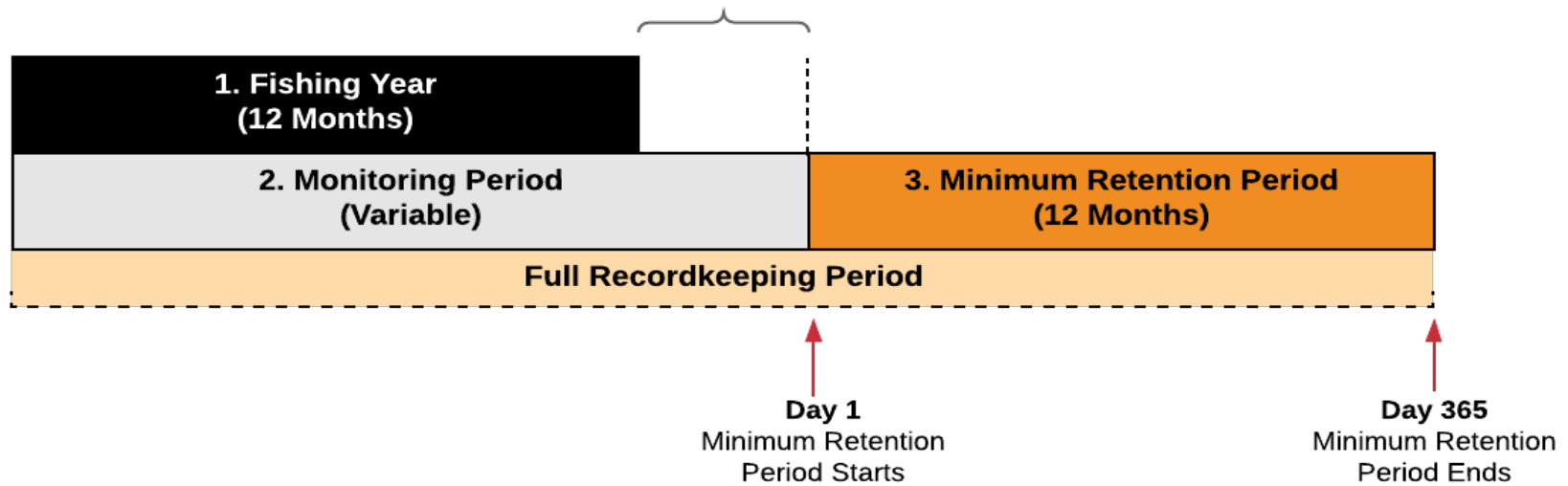
- Sampling – Hardware, video review and storage
- Administrative – Program support, provider certification/auditing, data analysis, and storing Federal records

Function	Cost Responsibility
Sampling	<ul style="list-style-type: none">• Industry• NOAA Fisheries - fees collected from industry<ul style="list-style-type: none">- EX: North Pacific landings fee• NOAA Fisheries for specific Federal programs<ul style="list-style-type: none">- EX: ESA, MMPA, SBRM
Administrative	<ul style="list-style-type: none">• NOAA Fisheries• NOAA Fisheries - fees collected from industry<ul style="list-style-type: none">- EX: West Coast cost recovery program

Third Party EM Data Retention Procedural Directive

- Past – Retained indefinitely (same as other observer records)
- Current/Future – Procedural directive and Regional guidance
- Process – Directive finalized in 2020 after public comment

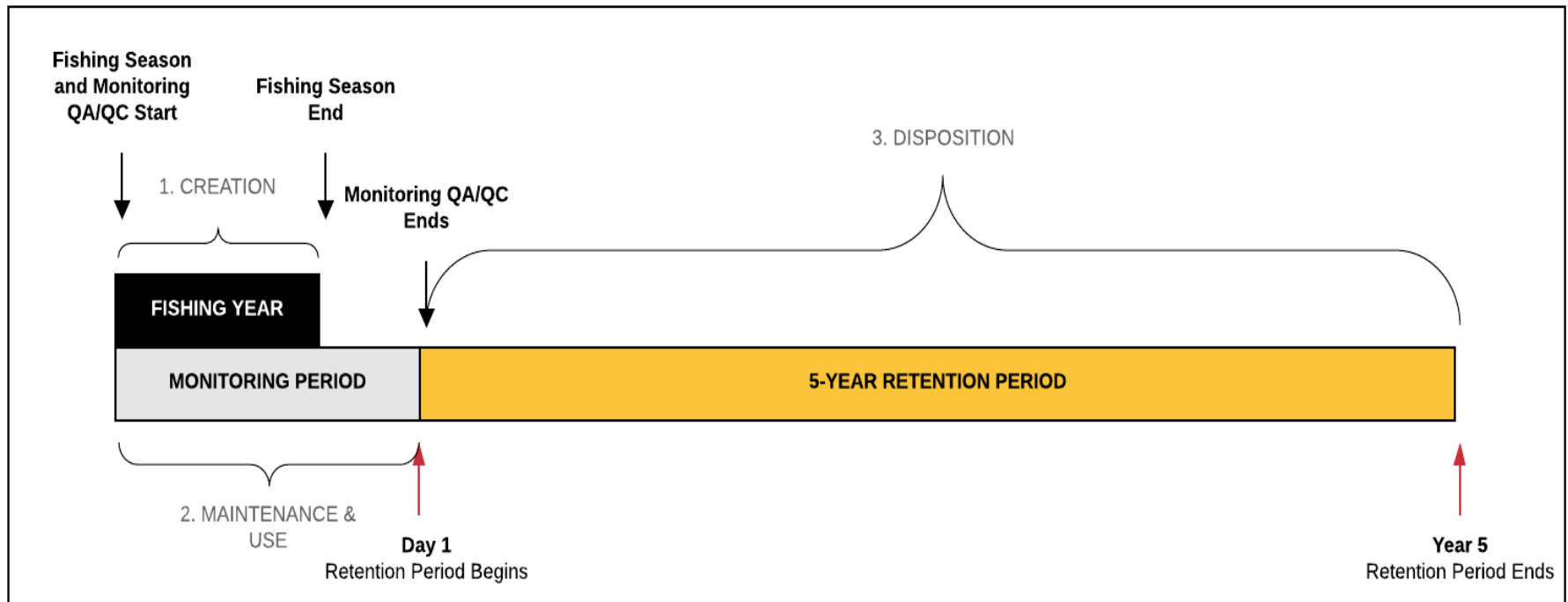
The monitoring period often extends beyond the close of a fishery as data are collected, processed, and analyzed



Federal EM Records Retention Schedule

National Archive and Records Administration (NARA)

- Past - Retain with observer records (indefinitely)
- Current/Future – New 5-year retention schedule for video and images
- Process - NARA published an FR notice, 45-day public comment period, addressed comments and released final schedule June 2021



Information Law Application to Data & Supporting Guidance in EM Programs Procedural Directive

- **Objective:** Provide clarity on how the Federal Records Act (FRA), the confidentiality provisions of Magnuson-Stevens Fishery Conservation and Management Act (MSA) section 402(b), and the Freedom of Information Act (FOIA) (collectively referred to as “Information Law”) apply to EM data.
- **Who:** NMFS, NMFS Contractors, NMFS Federal Financial Assistance Recipients, & Fishing Industry Contractor/Service Agreements
- **What:** Framework applies to how EM data are managed, protected, and shared

Information Law Application to EM Data

Summary of Information Law Application to Raw EM Data in Federal EM Programs

Party Maintaining Raw EM Data	FRA	MSA 402(b)	FOIA
NOAA Fisheries	Applies	Applies	Applies
NOAA Fisheries Contractor	Does Not Apply ^{4,5}	Applies ¹	Does Not Apply ⁴
NOAA Fisheries Federal Financial Assistance Recipient ²	Does Not Apply ^{4,5}	Applies ¹	Does Not Apply ⁴
Fishing Industry Contractor/Service Agreements	Does Not Apply	Applies ³	Does Not Apply

¹ NOAA Fisheries would include a requirement in any contract or financial assistance award to maintain the confidentiality of EM data.

² Entity is a recipient of a grant or is a party to a cooperative agreement.

³ Given applicability of MSA section 402(b), NOAA Fisheries expects that third parties have a means to protect EM data in an industry-funded EM program.

⁴ Does not apply if the EM data are stored on a non-NOAA system. Any EM data stored on a NOAA system would be subject to the FRA and FOIA.

⁵ By default, NOAA Fisheries would not include a provision in a contract or federal financial assistance award to require that the EM data be stored on a NOAA system. However, Section III.1.A provides clarity on when NOAA Fisheries would consider requiring that the EM data be maintained on a NOAA system.