Observer Data Supports Sustainable U.S. Fisheries

Liz Chilton
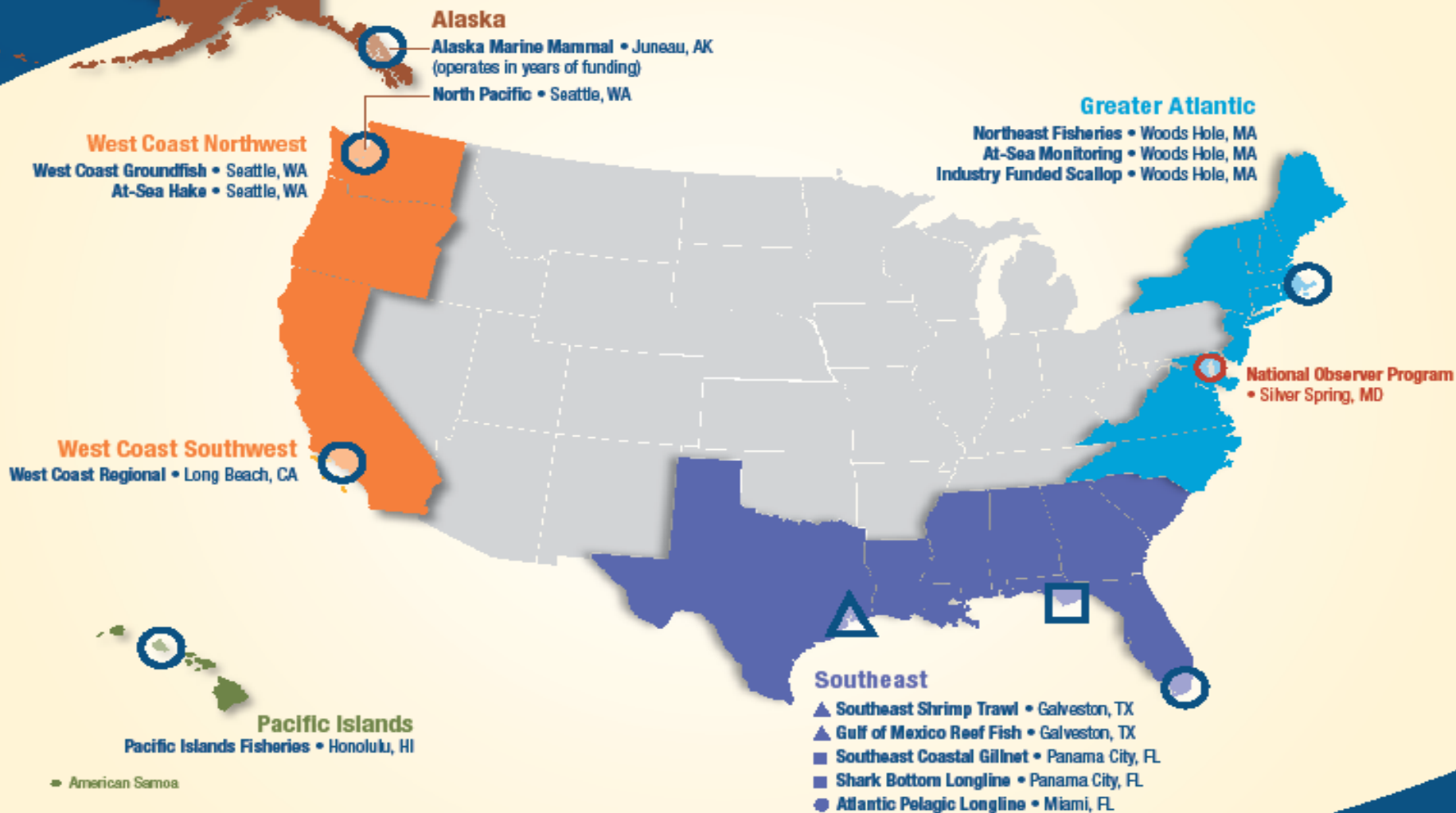
National Observer Program Coordinator

Office of Science and Technology

Council Member Training

October 17, 2019

NOAA
FISHERIES

Office of Science and Technology
Silver Spring, MD

U.S. Observer Programs

Alaska
Alaska Marine Mammal • Juneau, AK
(operates in years of funding)
North Pacific • Seattle, WA

West Coast Northwest
West Coast Groundfish • Seattle, WA
At-Sea Hake • Seattle, WA

Greater Atlantic
Northeast Fisheries • Woods Hole, MA
At-Sea Monitoring • Woods Hole, MA
Industry Funded Scallop • Woods Hole, MA

National Observer Program
• Silver Spring, MD

West Coast Southwest
West Coast Regional • Long Beach, CA

Pacific Islands
Pacific Islands Fisheries • Honolulu, HI

American Samoa

Southeast
▲ **Southeast Shrimp Trawl** • Galveston, TX
▲ **Gulf of Mexico Reef Fish** • Galveston, TX
■ **Southeast Coastal Gillnet** • Panama City, FL
■ **Shark Bottom Longline** • Panama City, FL
⬢ **Atlantic Pelagic Longline** • Miami, FL

National Observer Program

Mission

Provide a formalized mechanism for NOAA Fisheries to address observer issues of national importance and develop policies and procedures to ensure that NOAA Fisheries observers and observer programs are fully supported. The policies must reflect the diverse needs of regional observer programs while enhancing data quality and achieving consistency in key areas of national importance.

Objectives

- **Coordinate the National Observer Program Advisory Team (NOPAT)**
- **Communicate and advocate the mission of the National Observer Program and each regional observer program**
- **Develop and support national standards and policies to create high quality, cost effective, efficient, and productive observer programs**
- **Characterize and qualify the activities and resources of NOAA Fisheries observer programs and advocate for full support**

NOAA FISHERIES

Responsibilities of National Observer Program

Advisory Team (Steering Committee)

- Sets overall priorities, policies, and budget

Safety Advisory Committee

- Provides guidance to the NOPAT to ensure the well-being and safety of observers

Program Management Office

- Manages day-to-day operations, policy development, budgets, briefings.
- Chairs/Co-Chairs:
    - Electronic Technologies Working Group
    - National Bycatch Report Steering Committee
    - National Observer Program Advisory Team

Deploy 950 observers / >75,300 sea days / 53 fisheries

Regional Observer Program Responsibilities

- Sampling protocols and observer coverage levels

- Safety training

- Observer deployment

- Observer debriefing

- Data management

- Data analysis

Responsibilities of Deployed Observers

Collect fishery dependent data
- Fishing effort, gear type and location
- Biological samples (length, sex, maturity and age structures)
- Supports in season management of fisheries

Monitor fishing activities and support vessel safety compliance
- Magnuson-Stevens Act (MSA)
- Marine Mammal Protection Act (MMPA)
- Endangered Species Act (ESA)
- US Coast Guard commercial fishing vessel regulations

Commercial Fishing Effort Data

For every observed haul/set collect:

- Date and time of fishing activity
- Latitude and longitude of gear deployment and retrieval
- Depth of catch
- Gear type and mesh measurements
- Vessel characteristics
  - ➢ Type, permit number, length
- Vessel catch estimates

Observer At-Sea Duties

- Samples from incidentally caught marine mammals and endangered seabirds (MMPA and ESA monitoring)
- Fishing effort and total catch estimates
- Species composition on individual hauls/sets
- Discarded catch data (Bycatch)
  - Non-target species
  - Prohibited species

Biological Sampling

- ## Sex and Length
  - Random sample of fish from within species composition sample
  - Sample size dependent on predominant species and area

- ## Age (otoliths or vertebrate)
  - Random sample from within sex and length sample
  - Sample size dependent on predominant species and area

Observer Coverage and Deployment

- Coverage rates vary by regional program and funding availability

- Deployment through government contract or directly with Industry

- Each deployment length is variable
  Multiple gear types (fixed gear, trawl gear, mesh size)
  Vessel size (<30 to >200 Ft LOA)

Atlantic Ocean and Gulf of Mexico 2019 coverage

NE Groundfish Gillnet/Trawl
Approx. 15%

NE Scallop Dredge
5-20% based on permit type & area fished

Mid-Atlantic Large & Small Mesh Trawl: <10%

Herring Trawl (incl. Pair Trawl): 20%

Mid-Atlantic Coastal Gillnet/Pot/Seine: <10%

Atlantic Pelagic Longline: <10%

S Atlantic Shark Driftnet: 38%

Atlantic Shark Bottom Longline: Approx. 5%

Shrimp Otter Trawl: 2%

GOM Reef Fish: 1% combined

North Pacific (Alaska) 2019 coverage

**Bering Sea/Aleutian Islands/
Gulf of Alaska cooperatives:** 100%

**Bering Sea/Aleutian Islands/
Gulf of Alaska Groundfish & Halibut
Trawl/Longline/Pot:** 17-30%

Pacific Coast and W Pacific 2019 coverage

West Coast Trawl Catch Shares
100%

West Coast Groundfish
Non-Catch Share Fisheries
Approx. 3-8, 40%, based on permit type

Hawaii/American Samoa
Pelagic Longline: **HI, 20% for**
tuna, & 100% for swordfish
American Samoa, 20% tuna

CA Pelagic Longline
(3 vessel): 100%

CA Large-Mesh Drift Gillnet:19%

CA Deep Set Bouy (EFP): 40%

Electronic Technologies in U.S. Fisheries

Brett Alger
Electronic Technologies Coordinator
Office of Science and Technology

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VMS Program in U.S. Fisheries

Program Basics

- \> 4,000 vessels

- Satellite-based communications

- Operates all the time, in real-time

- Location, hail in/out, catch reporting

- Data confidentiality requirements
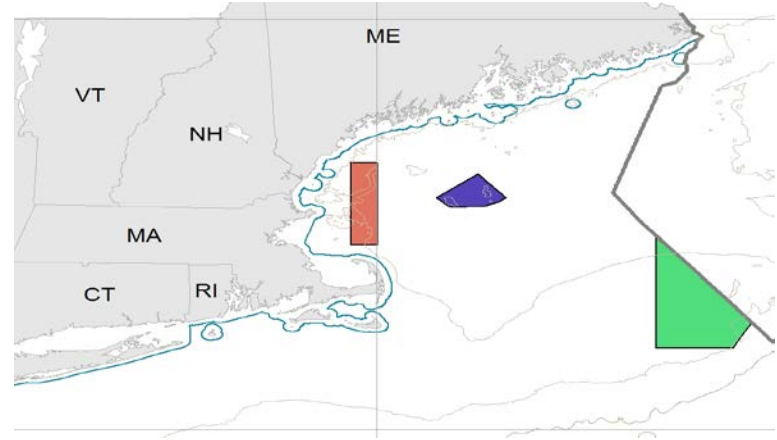
How it is used

- Monitoring closed areas and transiting

- Effort and quota monitoring

- Validating other data sources

- Port arrivals for sampling programs

Observer Technologies in U.S Fisheries

Existing Technologies

- Efficient, timely, and legible
- Customization and adaptation
- Auto-calculation and sync to databases
- Front-end error checks and validation

eReporting

Future Development

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

Length Code

40CM   50CM   STRAIGHT   CURVED

Validation Error

Fish Length should be between 1 and 1500.

OK

150CM   180CM
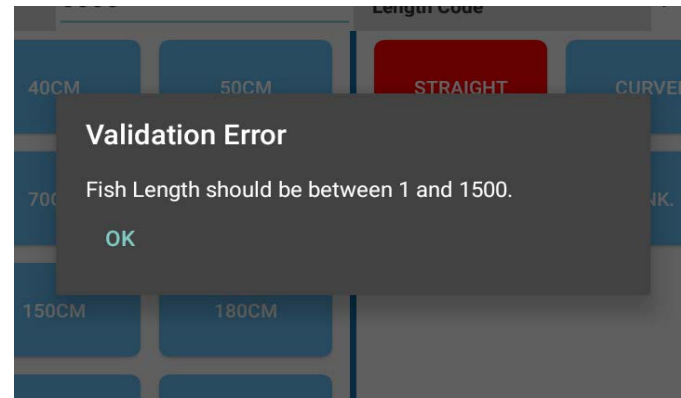
Electronic Reporting in U.S. Fisheries

Commercial and For-Hire Fisheries

- Vessels, processers, and dealers
- Long history of paper programs
- Councils - NE, MA, SA, GM, WP, & Pac
- Different requirements and participation
  - NE ~200 (out of 2,100) all commercial vessels
  - SE ~500 (out of 840) Gulf of Mexico snapper/grouper
  - PI ~10 (out of 165) Hawaii deep-set longline

Recreational Fisheries

- Data *must* be validated
- Angler *must* participate
- Participants *must* report all catch from all trips

AK-eLandings

ecotrust

NE-Fish Online

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 byatch. The programs on this map are listed in three categories: Implemented and under regulation (**bold**); pre-implementation, under an exempted fishing permit (EFP), and/ or being considering by their respective Fishery Management Council (plain); and pilot projects (*italics*).

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

Alaska

- **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)**
- Pollock Trawl Catcher Vessels
- Halibut Deck Sorting Trawl C/P

West Coast

- **Whiting Mid-Water Trawl**
- **Fixed Gear IFQ**
- Non-Whiting Mid-Water Trawl
- Groundfish Bottom Trawl
- *Nearshore Rockfish*

Greater Atlantic

- Northeast Multispecies
- Herring Mid-Water Trawl
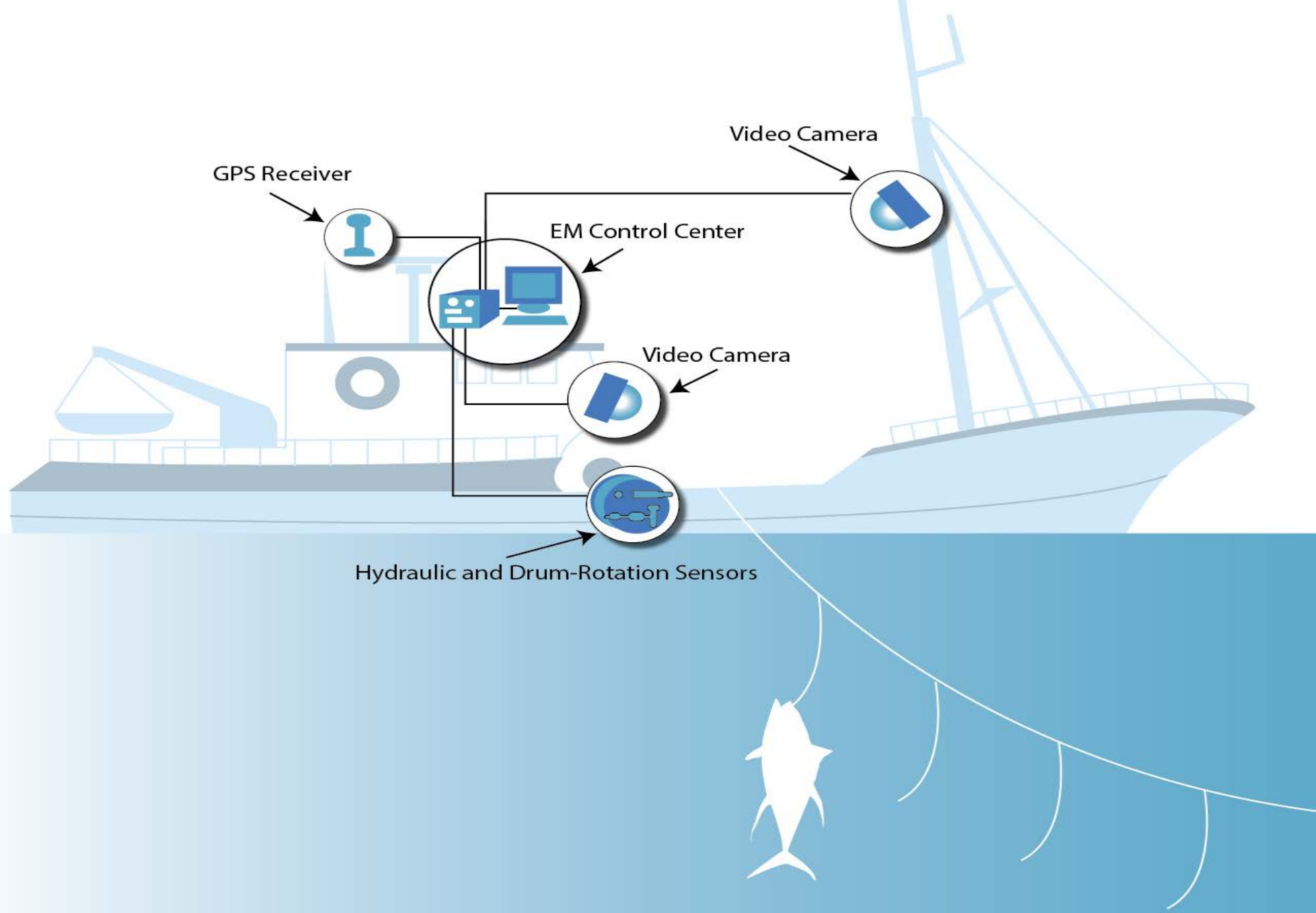- *Northern Gulf of Maine Scallop*
- *Northeast Multispecies For-Hire*
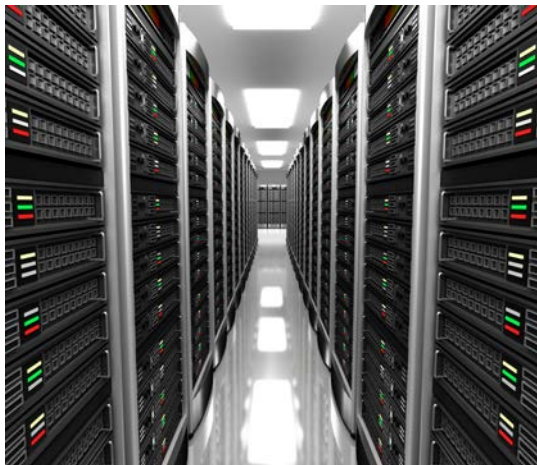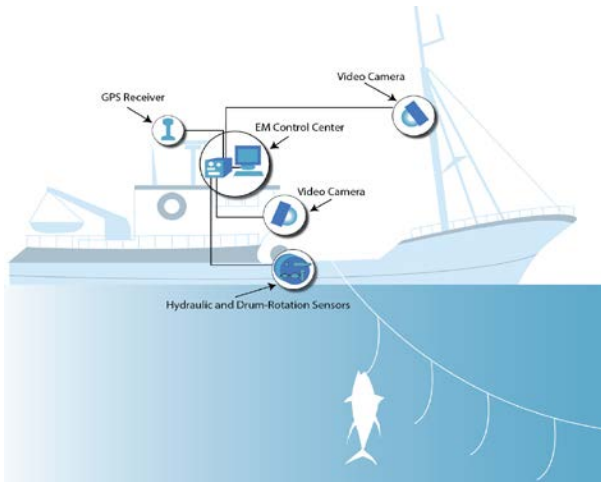
Atlantic Highly Migratory Species

- **Pelagic Longline**

Southeast

- *Snapper-Grouper*

Pacific Islands

- *Pelagic Longline - Hawaii Deep and Shallow Set*

GPS Receiver

Video Camera

EM Control Center

Video Camera

Hydraulic and Drum-Rotation Sensors

Video Review - Overview

Videos displayed during presentation

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, species ID, weight estimation

Costs & logistics – Transmission, review, and storage

Regulatory – Writing regulations for changing technologies

Data Infrastructure – New data in older systems

Analytical –Developing standards, comparing old with new

Policy development
- Access and ownership
- Video retention requirements
- Confidentiality

Other – Outreach and communication, scope creep

Electronic Technologies (ET) Policy Directive

2013

- Encourage the adoption of ETs, be effective and efficient, meet all needs
- Consider a combination of technologies, including electronic monitoring (EM)
- Utilize open source code and standards
- NOAA Fisheries will assemble guidance and best practices
- Consider funding options, NMFS and industry to coordinate on costs

2019

- Added observer technologies
- Annual updates (rather than biannual)
- New guidance on updating Regional ET plans
- Clarified objectives and definitions
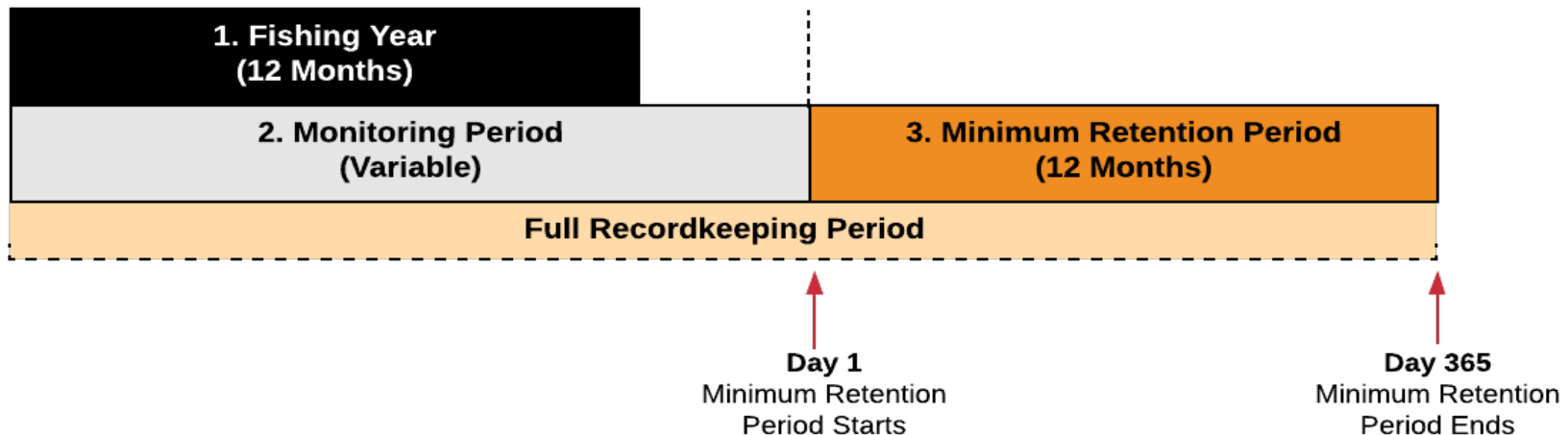
Procedural Directive on Cost Allocation for EM

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

Function	Cost Responsibility
Sampling	- Industry - NOAA Fisheries - fees collected from industry - EX: North Pacific landings fee - NOAA Fisheries for specific Federal programs - EX: ESA, MMPA, SBRM
Administrative	- NOAA Fisheries - NOAA Fisheries - fees collected from industry - EX: West Coast cost recovery program

NOAA FISHERIES

Third-Party Data Retention Procedural Directive

- Current – Retained indefinitely
- Future – Procedural directive and guidance to Regions
- Process – Comments due Dec 31, 2019, final policy in 2020

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

1. Fishing Year (12 Months)

2. Monitoring Period (Variable)

3. Minimum Retention Period (12 Months)

Full Recordkeeping Period

Day 1 Minimum Retention Period Starts

Day 365 Minimum Retention Period Ends

Federal Records Retention Schedule

National Archive and Records Administration (NARA)

- Current - Retain with observer records (indefinitely)
- Future – New retention schedule for video and images
- Process - NARA publishes an FR notice, 45-day public comment period
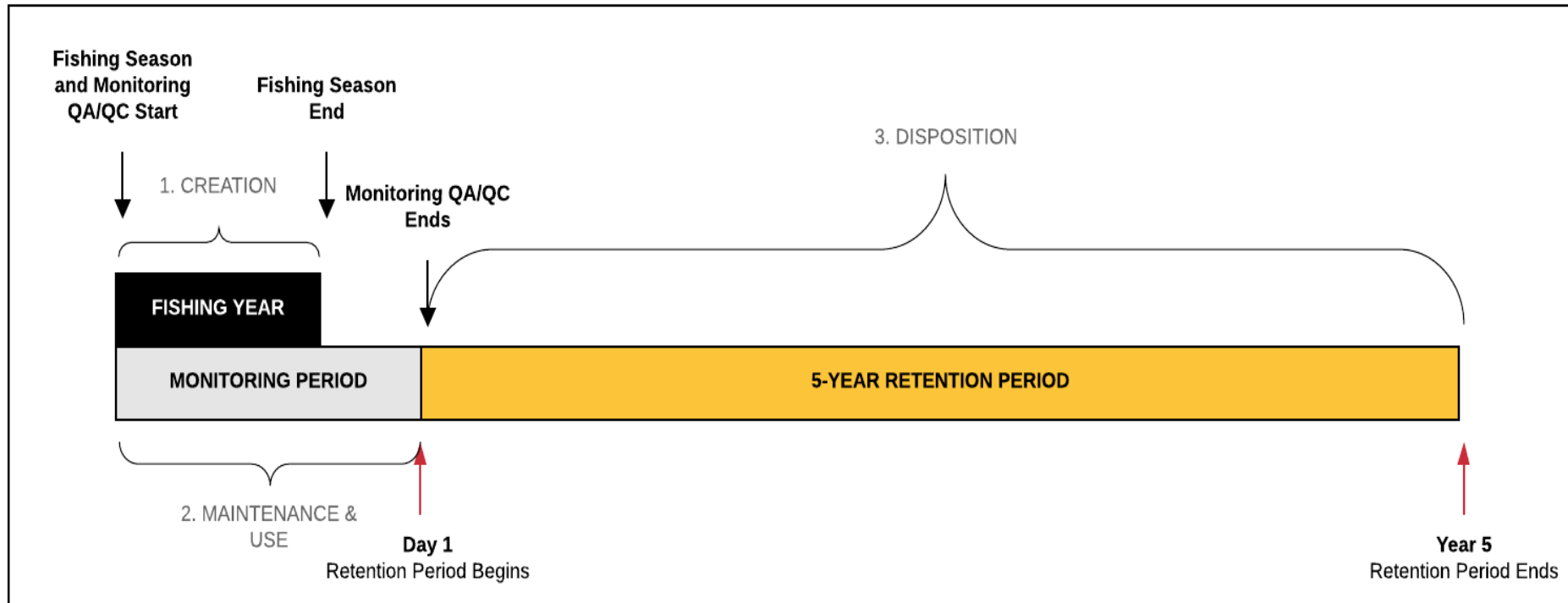
Electronic Technologies Progress in 2019

Policy Development

- Policy Directive for Electronic Technologies (final)
- EM Cost Allocation Procedural Directive (final)
- Third-Party Video Retention Requirements (draft)
- Retention Schedule for Federal Records (draft)

National EM Guidance and Best Practices

- EM program design
- Minimum standards and best practices
  - Vessel systems
  - Video review and data management
  - Data standardization and uses
- EM case studies
- Status of EM-related policies

Regional ET Implementation Plans

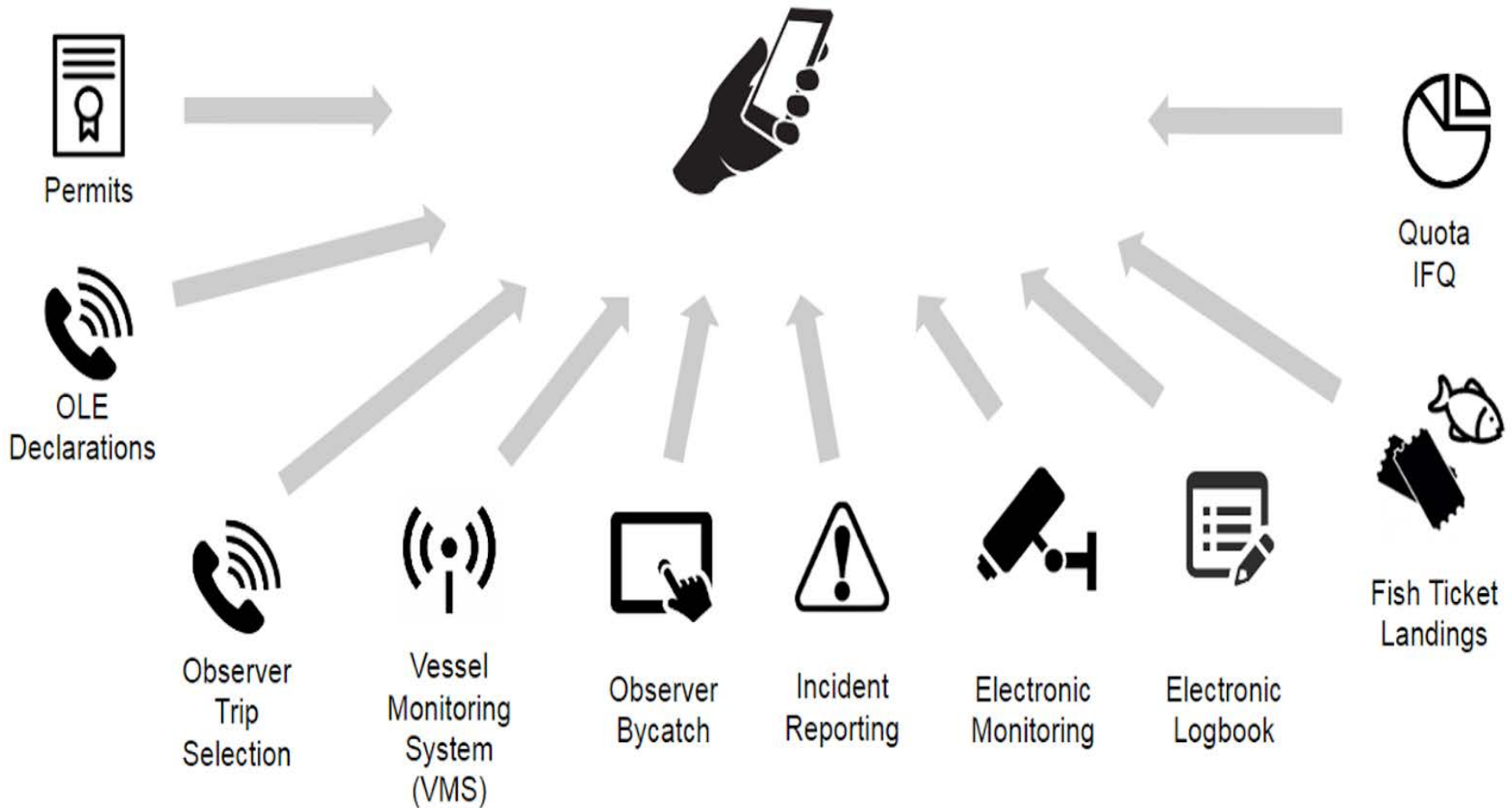Guidance and template out to Regions in June
- Regional 5-year vision and priorities
- Council actions, research, development, and pilot projects
- Data integration and interoperability (e.g., One touch reporting)
- Impediments to implementation and resource needs
- Tables to track progress for EM, ER, VMS, observer technology, etc.
- EM costs and transition plans

Communication and outreach
- NOAA will formally announce this initiative
- Engage and coordinate with all stakeholders
- Encourage cross-regional planning

Final updated ET plans publish in late June 2020

In the year 2024…….

Permits

OLE Declarations

Observer Trip Selection

Vessel Monitoring System (VMS)

Observer Bycatch

Incident Reporting

Electronic Monitoring

Electronic Logbook

Fish Ticket Landings

Quota IFQ

NOAA FISHERIES

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National EM Workshop 3.1
Portsmouth, NH Nov 13-14, 2019

National EM Workshop 3.2
Seattle, WA Feb 12-13, 2020