



NOAA
FISHERIES

Atlantic Highly Migratory Species Electronic Technologies Implementation Plan

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Table of Contents

	LIST OF ACRONYMS.....	2
1	EXECUTIVE SUMMARY	4
2	INTRODUCTION.....	6
3	VISION FOR 2021-2025	9
4	REGIONAL ELECTRONIC TECHNOLOGIES PRIORITIES	10
5	HMS MANAGEMENT DIVISION REGULATORY ACTIONS	11
6	ELECTRONIC TECHNOLOGIES USED IN THE REGION	12
	6.1 Summary of Fisheries using Electronic Monitoring.....	12
	6.2 Summary of Commercial Fisheries using Electronic Reporting	12
	6.3 Summary of For-Hire and Recreational Fisheries using Electronic Reporting	13
	6.4 Summary of Federal Dealers/Processors/Tenders using Electronic Reporting	14
	6.5 Summary of Observer programs/Study Fleet(s) Electronic Reporting Programs	15
	6.6 Summary of the Vessel Monitoring System Program	15
7	CHALLENGES IMPEDING IMPLEMENTATION OF ET PROGRAMS	17
8	RESEARCH AND DEVELOPMENT	18
9	DATA INTEGRATION AND MODERNIZATION	19
10	DATA STANDARDS AND INTEROPERABILITY OF ET SYSTEM	20
11	COSTS OF EM PROGRAMS.....	21
12	EM COST TRANSITION PLANS.....	22
13	REGIONAL COMMUNICATIONS AND OUTREACH PLAN	23
14	LIST OF TABLES	24
	Table 14.1 - Summary of Fisheries Participation in Electronic Monitoring Programs	24
	Table 14.2. Summary of Participation in Electronic Reporting Programs for Commercial Fisheries, including Groundfish, Pacific Halibut, and Crab.	24
	Table 14.3. Summary of Participation in Electronic Reporting Programs for For-Hire and Recreational Fisheries.....	25
	Table 14.4. Summary of Participation in Electronic Reporting Programs for Federal Dealers/Processors/Tenders.....	26
	Table 14.5. Summary of Participation in Electronic Data Collection for Observer	

Program/Study fleets..... 26

Table 14.6. Summary of Participation in Electronic Vessel Monitoring System

Programs.....26

Table 14.7. Cost template for Atlantic HMS Pelagic Longline EM Program)27

Acronyms	
ACCSP	Atlantic Coastal Cooperative Statistics Program
AR	Artificial Recognition
ATL	Atlantic Ocean
BMSY	Biomass at Maximum Sustainable Yield
CPUE	Catch Per Unit Effort
CSP RFP	Catch Share Program Request for Proposals
EM	Electronic Monitoring (video camera system)
ER	Electronic Reporting
ET	Electronic Technologies
FIS	Fisheries Information System Program
FMP	Fishery Management Plan
ERT	Earth Resources Technology, Inc.
FEIS	Final Environmental Impact Statement
FIS	Fishery Information Systems
FMSY	Fishing mortality rate corresponding to maximum sustainable yield
FR	Federal Register
GARFO	Greater Atlantic Regional Fisheries Office
GOM	Gulf of Mexico
GRA	Gear Restricted Area
HDD	Hard Disk Drive
HMS	Highly Migratory Species
IBQ	Individual Bluefin Quota

Acronyms	
ICCAT	International Convention for the Conservation of Atlantic Tunas
ICES	International Council for the Exploration of the Sea
LAPP	Limited Access Privilege Program
LWTRP	Large Whale Take Reduction Plan
MMPA	Marine Mammal Protection Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MT	Metric tons
NED	Northeast Distant Area
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOVESID	Valid Atlantic Tunas Longline permit, not associated with a vessels
OY	Optimum Yield
PLL	Pelagic Longline
POP	Pelagic Observer Program
SAFE	Stock Assessment and Fishery Evaluation Report
SAFIS	Standard Atlantic Fishery Information System
SCRS	Standing Committee on Research and Science (committee of ICCAT)
SEFSC	Southeast Fisheries Science Center (NMFS)
SERO	Southeast Regional Office
TESA	Technical and Engineering Support Alliance, LLC
US	United States
VMS	Vessel Monitoring System (satellite based system)

1 Executive Summary

The National Marine Fisheries Service (NMFS or NOAA Fisheries), including the Office of Sustainable Fisheries (OSF) Highly Migratory Species (HMS) Management Division, is committed to the use and exploration of electronic technologies (ET) when developing new and/or improving existing fishery-dependent data collection programs.

In May 2013, NOAA Fisheries issued the Policy Directive on Electronic Technologies and Fishery Dependent Data Collection (Policy Directive; 04-115; updated May 7, 2019), which called for the development of Regional Electronic Technology Implementation Plans to identify regionally specific fishery-dependent data collection challenges and how ET could address those challenges. ET includes the use of vessel monitoring systems (VMS), electronic reporting (ER), video cameras, gear sensors, and automated image processing for electronic monitoring (EM), data collection technologies for at-sea observers, and other technologies that can improve the timeliness, quality, integration, cost effectiveness, and accessibility of fishery-dependent data.

The Policy Directive encourages the consideration of ET to complement and/or improve existing fishery-dependent data collection programs to achieve the most cost effective and sustainable approach that ensures alignment of management goals, data needs, funding sources, and regulations. To achieve this, the directive specifically states:

1. NOAA Fisheries encourages all fishery stakeholders to consider implementing ET options, where appropriate, to meet science, management, and compliance data needs.
2. Fishery-dependent data collection programs will be designed and periodically reviewed by NOAA Fisheries to ensure effective, efficient monitoring programs that meet industry and government needs, increase coordination between regions and Councils, and promote sharing of research, development and operational outcomes.
3. Fishery-dependent data collection programs may be a combination of methods and techniques including but not limited to, self-reporting, at-sea observers, and dockside monitoring, as well as the use of ER and EM.
4. NOAA Fisheries supports and encourages the evaluation/implementation of EM to meet monitoring and compliance needs in federally managed fisheries, including full retention fisheries that have an associated dockside program for catch accounting
5. NOAA Fisheries encourages the use of ET that utilize open source coding and data standards, where appropriate, to facilitate data integration, software and hardware flexibility, and long-term cost savings.
6. NOAA Fisheries, in consultation with the Councils and subject matter experts, will assemble guidance and best practices for use by Regional Offices, Science Centers, Councils, Commissions, and stakeholders when they consider ET options. Implementation of ET in a fishery-dependent data collection program is subject to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and Council regulatory process, other relevant State and Federal regulations, and the availability of funds.
7. No ET-based fishery-dependent data collection program will be approved by NOAA Fisheries if its provisions create an unfunded or unsustainable cost of implementation or operation contrary to applicable law or regulation. Funding of fishery-dependent data collection programs is expected to consider the entire range of funding authorities available under federal law, including those that allow collection of funds from industry.
8. NOAA Fisheries will work with Councils and stakeholders to develop a plan that transitions certain costs to the fishing industry, when allocation of monitoring costs between the agency and industry is deemed appropriate and approved under applicable law and regulations.

In 2015, in response to this Policy Directive, the HMS Management Division, in consultation with the HMS Advisory Panel, developed the initial Electronic Technologies Implementation Plan for Atlantic Highly Migratory Species to assist in guiding the use of ET for HMS fisheries management in the Atlantic. In April 2017, the Biannual Progress Review of Implementation of NOAA Fisheries Electronic Technologies Policy, included updates from the HMS Management Division on progress being made in those fisheries. Currently, VMS, ER, and EM are being used to support the management of commercial, recreational and for-hire HMS fisheries in the Atlantic ocean, including the Gulf of Mexico and the Caribbean.

OSF continues to examine available ET – including both reporting and monitoring capabilities -- at the national and regional levels as a means to improve Atlantic HMS management both domestically and internationally. Modern fishery-dependent data collection technologies used in HMS fisheries have proven to be invaluable in ensuring collections are timely, accurate, and adaptable to emerging needs. These data collections are also capable of providing data at a scale that will support management and scientific needs of the agency and partners.

2 Introduction

Each NOAA Fisheries region will produce their own respective Electronic Technology Implementation Plan and therefore a number of cross references will be made to those plans where Atlantic HMS Management Division staff are collaborating with other regions given actual/potential overlap in reporting and monitoring authorities. These efforts are intended to mitigate or eliminate any duplicative requirements based on that overlap.

Given the geographic scope of the Atlantic HMS Management Division, cross collaborations will be most common with the Northeast Region (Greater Atlantic Regional Office (GARFO) and Northeast Fisheries Science Center (NEFSC)), and the Southeast Region (Southeast Regional Office (SERO) and Southeast Fisheries Science Center (SEFSC)). One additional important external partner is the Atlantic Coastal Cooperative Statistics Program (ACCSP), which is a collaboration of state and federal fishery management agencies that innovates standardized and streamlined data collection and processing solutions for vessels and dealers.

It should also be noted, collaborations can also occur beyond geographical overlap and thus if warranted Atlantic HMS Management Division will have open dialogs with the other regional offices and science centers consisting of: the West Coast Region (West Coast Regional Office (WCRO), Southwest Fisheries Science Center (SWFSC), and Northwest Fisheries Science Center (NWFSC)), the Pacific Islands Region (Pacific Islands Regional Office (PIRO) and Pacific Islands Fisheries Science Center (PIFSC)), and finally the Alaska Region (Alaska Regional Office (AKRO) and Alaska Fisheries Science Center (AKFSC)).

Over the past five years, the HMS Management Division has directly taken a number of ET related actions (regulatory and operational), or has been in close collaboration with other regional partners to further leverage how HMS data/information are collected in their programs. These collaborations as captured in the respective regional plans will also support internal (e.g., FIS/ET/CSP RFP) and external (e.g., National Fish and Wildlife Foundation EM/ER) competitive funding opportunities especially in those cases where multiple programs can benefit from the same funding.

Following is a description of recent, prominent HMS Management Division ET efforts.

Amendment 7 to the Consolidated HMS Fishery Management Plan

On January 1, 2015, NOAA Fisheries implemented Amendment 7 (79 FR 71510; December 2, 2014). This rule dramatically changed bluefin tuna management, particularly within the pelagic longline fishery. It implemented measures applicable to the pelagic longline fishery, including: the Individual Bluefin Quota (IBQ) Program; the Spring Gulf of Mexico Gear Restricted Area; the Cape Hatteras Gear Restricted Area; mandatory retention of legal-sized bluefin tuna caught as bycatch; and required EM via cameras and bluefin tuna catch reporting via VMS. ET requirements (IBQ program, EM, VMS) were implemented as tools to efficiently track, manage, and enforce management measures intended to reduce bluefin bycatch. NOAA Fisheries conducted a Three Year Review of the IBQ Program in accordance with requirements associated with Catch Share programs under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). This review was intended to assess the success of the IBQ program and also evaluate where improvements could be made. NOAA Fisheries identified numerous issues and options for adjusting ET management measures based on the results of the IBQ Three Year Review, and on suggestions and discussions on the management of Atlantic bluefin tuna since implementation of Amendment 7. These are discussed below in more detail.

Amendment 11 to the Consolidated HMS Fishery Management Plan

Electronic monitoring requirements implemented under Amendment 7 were incorporated into Amendment 11 to support rebuilding measures for shortfin mako sharks (84 FR 5358; February 21, 2019). These measures were based on the International Commission for the Conservation of Atlantic Tunas (ICCAT) stock assessment that determined that shortfin mako sharks are overfished and experiencing overfishing and reflect ICCAT Recommendation 17-08 (updated by Recommendation 19-06). This action implemented commercial measures

allowing retention of shortfin mako sharks if dead at haulback provided the fishing activity was observed by either an at-sea observer or an approved EM system. This action supports the rebuilding of the stock while mitigating the waste of any mortality events.

Three-Year Review of the Individual Bluefin Quota (IBQ) Program

Given the uncertainties with implementing a new program, NOAA Fisheries committed to a formal review of the IBQ Program three years after finalizing Amendment 7. This document was finalized in September 2019. The Three-Year Review discussed whether and how the IBQ Program had met its objectives. The review concluded that the IBQ Program was successful in limiting bluefin bycatch in the pelagic longline fishery (based on data detailing landings and dead discards before and after implementation). It also provided evidence of the effectiveness ET can have on the regulatory incentives to avoid bluefin. The EM component allowed for an independent data stream to validate reports submitted either through traditional logbooks, new VMS set reports, or even observer reports if the vessel/trip was selected for coverage. Given this level of monitoring, NOAA Fisheries was able to successfully balance achieving the IBQ Program objectives while addressing the concerns conveyed by constituents interested in the management and health of bluefin tuna. Prior to the implementation of Amendment 7, pelagic longline vessels had large amounts of regulatory dead discards, which caused the Longline category to consistently exceed its quota by large amounts. In contrast, after implementation, the Longline category did not overharvest its quota. ET played a significant role in the success of the IBQ Program, which has provided many diverse groups that are interested in this fishery (commercial, recreational, NGO) with confidence in the information being collected and the monitoring of the longline fishery.

Pelagic Longline Bluefin Tuna Area-Based and Weak Hook Management Measures

On April 2, 2020, NOAA Fisheries published this final rule to adjust regulatory measures that manage incidental catch of Atlantic bluefin tuna in the pelagic longline fishery (85 FR 18812). This action modified the requirement to use weak hooks in the Gulf of Mexico, removed the Cape Hatteras Gear Restricted Area (GRA) and converted the Northeastern United States Closed Area and the Spring Gulf of Mexico GRA to monitoring areas. For the monitoring areas, until December 31, 2022, fishing is allowed at times when these areas were previously closed to pelagic longline fishing provided the annual IBQ allocation threshold for the monitoring area is not exceeded. If the amount is exceeded, the relevant monitoring area will be closed indefinitely. If, by the end of 2022, the IBQ allocation threshold has not been exceeded, vessels using pelagic longline gear may continue to deploy pelagic longline gear in that area. VMS set-based reporting and the IBQ System are critical data sources used to implement the monitoring process of tracking daily landings and IBQ use against thresholds established for each monitoring area. EM data has been incorporated into monitoring procedures as a validation mechanism to verify fishing activity, as needed.

Online System for Atlantic HMS Tournament Registration and Reporting

In August of 2017, NOAA Fisheries introduced an online option to register Atlantic HMS tournaments and report HMS tournament catch on a new Atlantic Tournament Registry and Reporting (ATR) System. Atlantic HMS tournament registration and reporting is important for the management of swordfish, billfishes, tunas, and sharks because it characterizes a portion of the recreational fishing effort on these species, including general location and targeted species, and provides catch and landings data that are used for stock assessments and monitoring of landings under international requirements. The ATR System provides email confirmation that the registration application or reporting information is complete. Online registration and reporting provides an additional, easy option for complying with tournament registration and reporting regulations.

HMS Catch Reporting Phone App

In September 2017, NOAA Fisheries implemented the HMS Catch Reporting mobile app (as part of the Automated Landing Reporting System (ALRS)) to make it easier for Atlantic HMS fishermen to comply with requirements to report bluefin tuna, blue marlin, white marlin, roundscale spearfish, sailfish, and swordfish landings and dead discards of bluefin tuna. This mobile app (iOS and Android enabled) allows fishermen whether at sea, on the dock,

or at home, to record and submit the required stored information to NOAA Fisheries once an internet connection is available. Prior to this mobile app option, reports could only be submitted via a website or by phone during business hours.

3 Vision For 2021-2025

Promoting and supporting initiatives aimed at improving the agency's ET capabilities in Atlantic HMS fisheries is a key component of the HMS Management Division's vision of providing dependable access to comprehensive, accurate, and timely data. HMS Management Division data managers are tasked with organizing data and information in support of domestic and international policy and regulatory decisions, increasing efficiency, and coordinating operational activities with internal and external partners to streamline and minimize any burden incurred by the regulated public. The goal of this plan is to provide an operational strategy for implementing and expanding the use of ET for federally managed Atlantic HMS fisheries.

A primary objective for expanding the use of ET would be to improve the quality and timeliness of fisheries data for use by scientists and managers. The expanded use of ER would provide immediate benefits where reporting accuracy and precision can be improved and more timely data can be validated to address data collection issues. While EM can be important to both science and management, development and implementation of additional EM requirements beyond those already underway is considered a longer-term implementation goal.

ER technologies and automated image processing techniques are rapidly evolving, thus developing and implementing such fishery dependent technologies requires careful thought. Technological investments made today may not fit the needs of future processing and data delivery capabilities. Consideration of cost must extend beyond the acquisition of the technology and provide for infrastructure necessary to support the technology into the future and to adapt and evolve as technology advances.

Much of the data related to Atlantic HMS are managed and stored in multiple data systems, each with independent information files, programming platforms, architectures, and databases. Given the broad spectrum of data sources/formats and business processes, integration of these systems is an important consideration now and in the future. The need, and potential benefits, for integration was never more apparent than what was experienced during 2020. As the impacts of the COVID-19 impacted whole suites of monitoring and reporting programs, the HMS Management Division will need to continue exploring how ETs can further insulate fishery operations and management from unforeseen challenges. For example, exploring the potential needs of EM supplementing at-sea-observers, given their curtailed deployment during the COVID-19 and mandates that require them for a fishery to be prosecuted. These sorts of considerations must now be taken into account as part of the vision to increase monitoring and reporting flexibilities to assist with meeting completely new sets of challenges.

More broadly, the HMS Management Division's primary objective for enhancing its implementation of ET is to improve quota and/or annual catch limit monitoring and tracking, and to ensure compliance with regulations. In addition, other objectives for EM/ER include, but are not limited to: 1) improving perceptions and stakeholder buy-in regarding the data collection process through implementation of robust, validated data collection programs; 2) increasing data accessibility for managers, scientists, fishermen, and other constituents; and 3) developing standardized reporting practices and systems that reduce reporting burden and enhance quality control/quality assurance of submitted data.

A clearly defined process for successful implementation of ET is critical. The process should outline steps for assessing ET needs, development, implementation, and evaluation, with particular emphasis on whether ET could augment or replace existing systems. As proposed in NOAA's guidance and best practices for EM/ER, the Atlantic HMS Management Division intends to use a six-phase process for long-term future EM/ER consideration and development. The phases include: 1) program assessment, 2) identification of goals/objectives, 3) program design, 4) pre-implementation, 5) implementation, and 6) review and adaptation.

4 Regional Electronic Technologies Priorities

The following describes the HMS Management Division's ET priorities for 2021-2025, in no particular order:

1. The continued maintenance and evolution of ET programs to further minimize the burdens associated with reporting and monitoring of HMS fisheries. The HMS Management Division, the HMS Advisory Panel, as well as numerous other parts of NOAA Fisheries have made it a top priority to streamline reporting programs and maximize the efficiency of the systems the agency is using to collect fishery information. Some specifics associated with this priority are to continue to support the GARFO-led One-Stop Reporting Program, as well as other regionally led programs to ensure HMS mandated data elements are included. This will allow fishermen operating under the reporting requirements of multiple fishery management plans (FMPs) to report once for any given trip. Another example of an effort to minimize burden on the public is the development of an online option for vessel owners and operators and dealers required to take Safe Handling, Release & Identification Workshops and Shark Identification Workshops. To date, these workshops have only been conducted in person and the HMS Management Division is working to develop an online workshop option for attendees that have already attended an in-person workshop. This new option has the potential to maintain the benefits of in-person training for new workshop attendees while mitigating the time and cost needed to travel for online workshop attendees that have already been to an in-person workshop. NOAA Fisheries intends to have online workshops available in late 2021.
2. Continue to explore how both EM and ER can shape/reshape how the agency balances multiple objectives in managing HMS fisheries, including the reduction of bycatch that may occur in those fisheries. EM in pelagic longline fisheries has been implemented with a very narrow purpose, the monitoring of bluefin tuna disposition. However, the presence of EM in the fishery may provide opportunities to consider other ways to use EM with a broader scope that could have benefits for the fleet through additional regulatory flexibility, further reduction of bycatch, and even increased safety. Using ET in this fishery given its immense geographic and temporal scale could provide opportunities for the HMS Management Division and stakeholders and partners to further explore the efficacy of spatial management in order to improve target catch while maintaining or reducing bycatch levels. Another example worth noting, if the scope of EM used in the pelagic longline fleet enabled monitoring similar to that achieved by in-person observers, there is the potential that EM could provide additional flexibility and alternatives to in-person observers during periods of public health concerns. Any conversation regarding scope and design of ET programs must be executed with full transparency so all of the respective interests are allowed to share thoughts and concerns to determine how best to proceed. In parallel to any conceptual shifts in a program's scope, the logistical and operational implementation of those potential shifts (e.g., funding sources, data management, etc.) also require a substantive level of coordination and collaboration, so these subjects would be included in any future discussions with stakeholders and partners.
3. Continue to work with stakeholders and partners (e.g., fishermen, dealers, states, scientists) to further the understanding of how information reported to the Agency is being used (e.g., not just quota monitoring). This priority would continue to assess the feasibility of improving compliance with ER requirements for HMS fisheries as the regulated community as a whole gains a full understanding of the usefulness of accurate and timely data for efforts like international stock assessment. These efforts could lead to further practical improvements in how ER development and implementation is conducted.
4. Continue to engage on ET matters at the international level in addition to domestic application. NOAA Fisheries, and in particular HMS Management Division staff have and will continue to actively engaged in developing international policies and standards as they pertain to the use of ET at the Regional Fishery Management Organization (RMFO) levels or more specifically in association with guidelines being developed by the International Council for the Exploration of the Seas (ICES) as a leading multidisciplinary scientific forum for the exchange of information and ideas on all aspects of marine sciences pertaining to the North Atlantic.

5 HMS Management Division Regulatory Actions

The following briefly describes pending and potential HMS Management Division actions related to the development and use of ET in fishery-dependent data collection programs. Previous actions taken are listed above in the Introduction section.

Atlantic HMS fisheries are managed under the dual authority of the Magnuson-Stevens Act and the Atlantic Tunas Convention Act (ATCA). Under the Magnuson-Stevens Act, NOAA Fisheries must, consistent with ten National Standards, manage fisheries to maintain optimum yield on a continuing basis while preventing overfishing. ATCA authorizes the Secretary of Commerce (Secretary) to promulgate regulations, as may be necessary and appropriate to carry out binding recommendations of the ICCAT. The authority to issue regulations under the Magnuson-Stevens Act and ATCA has been delegated from the Secretary to the Assistant Administrator for Fisheries. The measures proposed in this amendment are taken under the authority of the Magnuson-Stevens Act and ATCA. Currently, Atlantic sharks, tunas, swordfish, and billfish are managed under the 2006 Consolidated Atlantic HMS Fishery Management Plan (2006 Consolidated HMS FMP) and its amendments.

Amendment 13 to the 2006 Consolidated Atlantic HMS FMP

In 2019, NMFS released a scoping document for Amendment 13 to the 2006 Consolidated HMS FMP and conducted public scoping meetings (84 FR 23519 May 22, 2019). NMFS anticipates publishing a proposed rule and Draft Environmental Impact Statement (DEIS) in spring 2021 that will address a number of management issues in the bluefin tuna fishery. Some of those issues include incorporation of ET in IBQ Shares management and designation. The IBQ Program was the impetus for deploying EM in the Atlantic pelagic longline fisheries in 2015. As such, Amendment 13 is a logical outgrowth of management measures implemented in Amendment 7. These Amendment 7 measures were assessed for their effectiveness in The Three-Year Review of the IBQ Program in an effort to further inform what should be included in the scoping document of Amendment 13. The ET centric issues that were included in the scoping document included clarifying and potentially expand regulations pertaining to camera installation of the pelagic longline fishery EM Program, considering specific fish handling protocols to assist in consistency of images/video and data being collected from different vessels and exploring ways to reduce some of the logistical burdens associated with hard drive mailing frequency. A few other topics that were scoped for potential consideration in association with ET applied to HMS fisheries included the development and implementation of a cost recovery program associated with the IBQ Catch share program and incorporating efficiencies with dealer reporting requirements by potentially addressing login and data submission requirements.

Research and Data Collection in Support of Spatial Management

In 2019, NMFS released a scoping document on Research and Data Collection in Support of Spatial Management and conducted scoping meetings. During scoping, NMFS gathered information from the public about options to perform research and data collection in areas closed to or restricting fishing for HMS as well as ways to perform such research and data collection, including ET options. NMFS anticipates publishing a proposed rule on spatial management in late 2021.

As NOAA Fisheries continues to strive for efficiency in reporting programs and maximizing how ER can streamline the burdens associated with reporting, HMS Management Division staff in collaboration with HMS Advisory Panel members, stakeholders and partners will continue to examine the suite of HMS Management regulations and assess if the current reporting protocols are meeting the needs of constituents, the fishery, and the agency. These discussions will occur at HMS Advisory Panel meetings and may also include public workshops and/or informational meetings.

6 Electronic Technologies Used In The Region

6.1 Summary of Fisheries using Electronic Monitoring

Atlantic HMS Pelagic Longline EM Program

The EM program for the pelagic longline fishery for Atlantic HMS was the first fleet-wide implementation of EM in the United States. This program was designed with the intention to provide an effective and efficient way to monitor and verify Atlantic bluefin tuna catches in the pelagic longline fishery and assist in managing HMS resources in a manner that maximizes resource sustainability and fishing opportunity, while minimizing, to the greatest extent possible, socioeconomic impacts. It also introduces new levels of individual accountability for each vessel's fishing practices. EM is employed on vessels with an Atlantic tunas longline permit in order to verify bluefin tuna interactions. The program is mandatory for each vessel that intends to fish for HMS with pelagic longline gear regardless of where and when they operate from Maine to Texas, in the Caribbean, as well as in international waters. This requirement was implemented in June 2015 as part of Amendment 7. The initial implementation covered more than 100 vessels over a wide geographic area. The first six months of the program were used to coordinate installations over twelve different ports up and down the coast and to educate fishermen and managers about the operation of the system. The initial education and outreach effort familiarized all stakeholders with the system, ensured proper operation, and provided compliance assistance following the introduction of the new technologies.

HMS permitted vessels fishing with pelagic longline gear must have an installed and fully functional EM system on the vessel. The objective of the EM system is to provide NOAA Fisheries a means with which to verify the accuracy of counts and identification of bluefin tuna reported by the vessel owner/operator. The principal elements of the EM are video cameras (2 to 4), control box (computer) and monitor, GPS receiver, and hydraulic and drum rotation sensors (as well as power source, etc.). Although the EM system must be powered on during the full fishing trip, the video cameras only record during the hauling back of the pelagic longline. The cameras are installed to provide a view of the area where the longline gear is retrieved and catch is removed from the hook (along the side of the vessel at the waterline), as well as a view of the deck near the haul back or processing station.

Upon completion of a fishing trip, the vessel operator must mail the removable EM system hard drive to a NOAA Fisheries-approved contractor, within 48 hours of the completion of the trip (with a prepaid, return addressed mailing envelope). Prior to departing on a subsequent trip, the vessel owner or operator must install a replacement hard drive to enable data and video recording.

A NOAA Fisheries contractor reviews the videos from a pre-selected sample list of longline sets, in order to audit a small portion of the total number of pelagic longline sets. The audit sample design is stratified based on historical data to sample during times and locations likely to encounter bluefin tuna. Every active vessel is audited at least once, with the total number of audits in proportion to a vessel's annual fishing effort.

6.2 Summary of Commercial Fisheries using Electronic Reporting

Commercial Atlantic bluefin tuna handgear fisheries

Vessel owner/operators with Atlantic Tunas General and Harpoon category permits, the HMS Charter/Headboat permit (while fishing commercially), and combination swordfish/tuna permits are required to report trip and catch information for all bluefin tuna landings and dead discards, within 24 hours of the landing event. These reports can be submitted in a number of ER ways, in addition to the traditional methods (i.e., call in reports) such as:

- The online vessel permitting/catch reporting website (<https://hmspermits.noaa.gov/>). The catch reporting aspect of the website is referred to as the HMS Automated Landings Reporting System (ALRS). This site allows

fishery participants to not only apply for/renew their vessel permits but also report the catch HMS, thus streamlining the number of websites needed to adhere to HMS requirements.

- Mobile apps for both Android and Apple devices. The Catch Reporting mobile app makes it easier for Atlantic HMS fishermen to record their trips and report bluefin tuna. Whether at sea, on the dock, or at home, fishermen can record their landings and releases and submit the stored information to NOAA Fisheries once an internet connection is available.
- Various other regional managed programs. HMS Management Division staff have spent considerable time collaborating with other regions to incorporate the data elements necessary to meeting the reporting requirements for HMS, bluefin tuna in particular, so fishermen that fall under multiple authorities or jurisdictions can minimize any duplicative reporting for one particular trip. Some examples of these non-HMS managed programs are: ACCSP's eTrips application that allows captains to capture their catch and effort data while at sea, independent of a full-time internet connection; GARFO eVTRs allow operators of most GARFO-permitted commercial and for-hire vessels must submit vessel trip reports for each fishing trip; and the Southeast For-Hire Electronic Reporting Program implements ER of for-hire vessel catch data in the Gulf of Mexico and Atlantic. These programs are designed to provide more accurate and reliable fisheries information about for-hire catch, effort, and discards directly improving data collection that is critical to population assessments and better fisheries management. For all of these programs more detail will be provided in the respective Regional Electronic Technology Implementation Plans.

Atlantic Pelagic Longline fishery

In addition to the EM, aspects of the IBQ Program as applied to the pelagic longline fishery mentioned above, vessels operating in this fishery also have an ER requirement regarding bluefin tuna interactions. Vessels fishing with pelagic longline gear must report through their mandated Vessel Monitoring System (VMS) unit within 12 hours of completion of each pelagic longline set the following: date the set was made; area in which the set was made; the number of hooks in the set; and the approximate length of all bluefin tuna retained, discarded dead, or released alive (by standardized size ranges). These ERs submitted through the VMS units are in addition to the other VMS mandates as discussed in Section 6.6.

6.3 Summary of For-Hire and Recreational Fisheries using Electronic Reporting

HMS Managed Vessel ER Programs

The HMS ALRS is the primary system through which HMS Angling and HMS Charter/Headboat category permit holders report their respective catch of bluefin tuna, billfish, and swordfish. Holders of these permits are required to report any landings of the above listed species, and any dead discards of bluefin tuna, within 24 hours of returning from a trip. The ALRS provides several options for reporting their catch including a reporting interface within the HMS Permit Shop website (<https://hmspermits.noaa.gov/>), a mobile HMS Catch Reporting App that is available for both iOS and Android mobile systems, or by reporting their landings by phone. Although currently not ER, anglers in Maryland and North Carolina are required to report their HMS landings through state-operated catch card reporting programs. Billfish, swordfish, and bluefin tuna landed and entered in a registered HMS tournament do not have to be reported by vessel permit holders as the landings are instead reported by the tournament operator as explained below. However, billfish and swordfish that are not entered in a registered HMS tournament (i.e., not weighed in) must be reported by the vessel permit holder within 24 hours of landing.

Atlantic HMS Tournament Registration and Reporting (ATR) Online system

Existing regulations require Atlantic HMS tournament operators to register their tournaments with NOAA Fisheries, and authorize NOAA Fisheries to select HMS tournaments for reporting. The HMS Management Division partnered with the Southeast Fishery Science Center (SEFSC) and the Fisheries Information System (FIS) Program

to develop a single, automated system for all HMS tournament data and eliminate overlapping efforts between the respective offices. This state-regional-federal collaboration aimed to improve access to comprehensive, high quality, timely fisheries information. The joint effort yielded the ATR system, and was launched in August 2017. This successful system features an online portal for HMS tournament operators, and dynamic querying and summary capabilities for NOAA Fisheries staff. Tournament operators can register and report tournament results at: <https://grunt.sefsc.noaa.gov/apex/secapxdv/f?p=127:1:18166670817507:::>

In January 2019, NOAA Fisheries announced that all Atlantic HMS tournaments would be selected for reporting. Prior to that only a portion of Atlantic HMS tournaments (i.e., billfish and swordfish tournaments) were selected for reporting. Atlantic HMS tournament operators are required to submit an HMS tournament catch summary report within seven days after tournament fishing has ended. Most of the catch data in the summary report is routinely collected in the course of regular tournament operations and is now easily submitted via the ATR system. The data, along with other data sources, are used to better understand the impact of tournament operations in relation to other types of fishing activities and in some HMS stock assessments as well as for catch limit monitoring and reporting to ICCAT.

The ATR was the evolution of the tournament registration program and the Recreational Billfish Survey and resulted in improving tournament registration and the monitoring of recreational tournament billfish and swordfish landings by establishing a comprehensive, integrated database. The ATR direct submission of data reduces transcription errors, increasing quality control and assurance. Automatic system reminders to tournament operators alleviate the need for operators and agency staff to track data down. The ATR's increased efficiency and accuracy means staff can spend less time managing data and more time analyzing it and because tournament landings are an important source of HMS data, the enhancements also contribute to overall improvements in the management of these species.

Other Regional Managed Vessel ER Programs

Just as mentioned in the previous section pertaining to commercial ER programs managed under other regional authorities, several ER initiatives targeting the for-hire fishery have recently been implemented in the Northeast and Southeast regions that affect dual-permitted Atlantic HMS fishermen. In 2017, approximately 35 percent of Atlantic HMS Charter/Headboat permit holders also held New England, Mid-Atlantic, South Atlantic, or Gulf of Mexico permits requiring federal logbook reporting. NOAA Fisheries is considering how to proceed with compatible reporting programs for Atlantic HMS charter-headboat fisheries to reduce reporting burden and ensure that all required data elements for management of Atlantic HMS fisheries are being collected. The Southeast For-Hire Electronic Reporting Program implements ER of for-hire vessel catch data in the Gulf of Mexico and Atlantic. The purpose of this Southeast program is to provide more accurate and reliable fisheries information about for-hire catch, effort, and discards. The Southeast For-Hire Electronic Reporting Program has unique requirements for Gulf of Mexico and South Atlantic council-managed fisheries which differ based on the required reporting frequency, the data elements reported, and the type of reporting system. The eVTR program has been implemented for several northeast regional charter-headboat fisheries. One additional reporting option available to both regional charter-headboat reporting programs is SAFIS eTrips, which was developed by the ACCSP. eTrips has the capability to address unique reporting needs for multiple state and federal programs, and is one of many type-approved options (e.g., regional office applications, VMS, Bluefin (VESL), etc.) that NOAA Fisheries could consider to support compatible ER requirements for Atlantic HMS charter-headboat fisheries.

6.4 Summary of Federal Dealers/Processors/Tenders using Electronic Reporting

Since January 2013, all Atlantic HMS dealers have been required to electronically report commercially-harvested Atlantic sharks, swordfish, and bigeye, albacore, yellowfin, skipjack (BAYS) tunas. The purchase of these commercially-harvested species are submitted electronically by Atlantic HMS dealers on a weekly basis after dealers purchase fish from fishing vessels. Electronic dealer reports are required to be on a trip basis, and any

purchases by the dealers from Sunday to Saturday of each week must be electronically reported by the following Tuesday. Reports are required whether dealers purchased seafood products for a given week (i.e., a “positive” report) or not (i.e., a “negative” report). As of March 2016, these ER requirements also apply to purchases of smooth dogfish. ER on a weekly basis is necessary to ensure timely and accurate reporting, which is critical for quota monitoring and management of Atlantic HMS species, particularly sharks which have relatively small quotas.

To minimize the reporting burden on dealers, the Atlantic HMS reporting requirements have been integrated into existing electronic dealer reporting programs, including ACCSP’s Standard Atlantic Fisheries Information System (SAFIS) and different state reporting programs developed by Bluefin Data LLC (i.e., the Trip Ticket and VESL programs). This integration was developed through extensive coordination with the Northeast Fisheries Science Centers (NEFSC), SEFSC, ACCSP, the Gulf States Marine Fisheries Commission as well as individual states. This approach enables federal dealers to report their entire purchase for a given trip, often consisting of HMS and non-HMS, within the same reporting system and meet both state and federal reporting requirements. All electronic dealer reports that contain Atlantic sharks, swordfish, or BAYS tunas are coalesced from the different ER programs and sent to one centralized database, called ‘eDealer.’ It can be a common misconception that eDealer is a program when in fact it is the database populated from multiple electric dealer programs. There are also dealers who do not have other electronic state and federal reporting requirements; these dealers use a data portal to send electronic federal HMS dealer reports directly to the eDealer database.

In 2016, dealer reporting for Atlantic bluefin tuna was folded into the SAFIS dealer reporting application (June 29, 2016; 81 FR 42290). Dealers must report each bluefin tuna via SAFIS within 24 hours of purchase, which allows the HMS Management Division to finely tailor season length and fully utilize the country’s internationally-based quota. Dealers are also required to report bluefin purchases of longline-caught bluefin in the individual bluefin quota monitoring system (IBQ) application. Landings data entered into the IBQ system are used to monitor bluefin bycatch quota usage by pelagic longline vessels, and to track landings from the Northeast Distant Area, which are not included in individual bluefin quotas allocated to pelagic longline vessels.

6.5 Summary of Observer Programs/Study fleet(s) Electronic Reporting Programs

The HMS Management Division currently partners with the SEFSC for observer coverage in both the pelagic and bottom longline fisheries. Therefore, any summary of these programs and interfaces with ER will be deferred to Section 6.5 of the Southeast Electronic Technology Implementation Plan.

6.6 Summary of the Vessel Monitoring System Program

VMS in HMS managed fisheries are primarily used to facilitate enforcement of time/area and fishery closures. Owners or operators of commercial vessels (e.g. pelagic and bottom longline and shark gillnet fisheries) that are permitted, or required to be permitted, to fish for Atlantic HMS are required to install a NOAA Fisheries-approved enhanced mobile transmitting unit (E-MTU) VMS on board the vessel and operate the VMS unit under the following circumstances:

- Whenever the vessel has pelagic longline gear on board
- Whenever a vessel issued a directed shark limited access permit (LAP), has bottom longline gear on board, is located between 33°00’ N. latitude and 36°30’ N. latitude, and the Mid-Atlantic shark closed area is closed as specified in § 635.21(d)(1), or
- Whenever a vessel issued a directed shark LAP has gillnet gear on board from November 15-April 15.

The VMS hardware and communications service provider must be on the VMS type approval lists for use in HMS fisheries, which is available at: <https://www.fisheries.noaa.gov/noaa-fisheries-type-approved-vms-units>.

All VMS units must be installed by a qualified marine electrician and must always be on, operating, and reporting position data 24 hours and day, 7 days a week, and NOAA Fisheries enforcement must receive these transmissions every hour without interruption. The only exception to this requirement is that vessel owners and/or operators that will not be fishing for extended periods of time, such as when placing the vessel in dry-dock for repairs or suspending all fishing activity for the off season, may apply for a documented power-down exemption for their vessel from NOAA Fisheries Office of Law Enforcement.

Prior to leaving port for any trip, a vessel owner or operator must declare their target species and gear type(s) using the VMS terminal (“hail-out”). If the vessel is participating in multiple fisheries or switches to a different gear type or target species group, the vessel owner or operator must submit another declaration. At least three hours, but no more than 12 hours, prior to landing, the vessel owner or operator must provide NOAA Fisheries advanced notice of landing (“hail-in”) using the VMS terminal. For trips that are expected to be completed in less than three hours, vessels have the option of making a hail-in declaration at the same time (or before) the “hail out” declaration (i.e., gear and target species declaration) is made. After submission of the landing notification, a confirmation code is provided through the VMS system.

As mentioned above in Section 6.2, vessels fishing with pelagic longline gear must submit a HMS Bluefin Tuna Catch Report through VMS within 12 hours of completion of each pelagic longline set. Specifically, the report must include: date the set was made; area in which the set was made; the number of hooks in the set; and the approximate length of all bluefin tuna retained, discarded dead, or released alive (by standardized size ranges), including reporting of zero bluefin on a set.

7 Challenges Impending Implementation Of ET Programs

To date, the majority of ET programs applied to Atlantic HMS fisheries have been developed using federal funding or via fees for special products or services provided by NOAA to non-federal recipients. The future of ET, especially the use of EM, will depend on securing long-term sustainable funding sources. The Policy Directive on Electronic Technologies and Fishery Dependent Data Collection (04-115-02) has laid out a process for allocating costs for EM programs in federally managed U.S. fisheries between NOAA Fisheries and the fishing industry, and a timeline for implementing the framework. In programs in which industry is responsible for certain costs, but NOAA Fisheries has historically been paying those costs, the costs should transition to industry over time. Depending on the availability of appropriated funds, NOAA Fisheries may cover sampling costs in the initial stages of implementing a program. However, in such cases, transition plans should be developed to transition those costs to industry over time (not to exceed 3 years). The pace of the transition to industry funding will be specific to each fishery and will be determined by NOAA Fisheries and the Councils, taking into account the status of the fisheries and the amount of funding appropriated to NOAA Fisheries for fishery monitoring programs.

A second challenge experienced in implementing ET, is establishing a clear purpose and objective of the program. It can be common for some level of 'scope creep' to occur once a ET program is implemented and additional potential applications come to light. Any potential modification in the purpose of a ET program needs to be vetted thoroughly to ensure that all aspects of the program (e.g., impacts to the fishery, funding sources, program data management etc.) are discussed. This highlights the need for ongoing transparent discussions to continue in respect to the purpose and need of the ET program to address or mitigate these challenges.

A third challenge to implementing ET programs is the extensive interplay HMS fishery management has with international binding recommendations from ICCAT. HMS Management staff in conjunction with staff from the Office of International Affairs and Seafood Inspection support the United States delegation to ICCAT and are actively engaged in providing domestic perspectives to be considered as part of the international deliberations, and more specifically on ET programs, that are being explored. The true challenge is ensuring anything agreed to internationally can be implemented domestically and that the agency is able to bring domestic ET experiences and lessons learned to the international table to make any international ET measures as effective as possible.

NOAA Fisheries, the HMS Advisory Panel, as well as respective stakeholders and partners will need to engage on these three challenges that have the potential of impeding the continued use, implementation, and further development in Atlantic HMS fisheries. To adhere to the implementation timelines outlined in the Policy Directive on Electronic Technologies and Fishery Dependent Data Collection, these discussions would need to take place over the next few Advisory Panel meetings held each spring and fall.

8 Research and Development

Assessing the feasibility of EM sensor technology to record soak time in bottom longline fisheries

Off the southeastern United States, bottom longline fisheries target coastal sharks, snappers, and groupers. Observer coverage in these fisheries has documented bycatch of numerous species including prohibited sharks (e.g., dusky, sand tiger) and protected species listed under the Endangered Species Act (ESA) (e.g., sea turtles, smalltooth sawfish). While these species must be released or discarded when caught, bycatch mortality, including both at-vessel and post-release, is a concern in these fisheries. A number of factors can affect bycatch mortality rates. One important factor is soak time, which is the length of time a gear is in the water between setting and hauling. Soak time regulations have proven difficult to implement due to limited information on the variable relationship between soak time and mortality rates across species, as well as challenges associated with at-sea enforcement and safety at sea concerns. The use of EM technologies in fisheries, including gear sensors, video, and other data streams, has been expanding in recent years to complement at-sea observer data collection and improve compliance. If EM can be reliably used to quantify soak times across bottom longline fisheries, it could be used to better estimate total prohibited and protected species bycatch mortality, and enhance the potential to use soak time limits in the future. This potential study will assess whether EM sensors can be used to accurately record soak time on individual bottom longline sets. Data on soak times will be collected through the NOAA Fisheries Shark Research Fishery, using EM sensors and validated by at-sea observer data.

Exempted Fishing Permit (EFP) to the Cape Cod Commercial Fishermen's Alliance (CCCFA) to Retain Bluefin Tuna

The HMS Management Division has issued an EFP to CCCFA to use EM to verify authorized gear use when fishing for, retaining, and possessing bluefin tuna during a fishing trip on which unauthorized gear is also onboard. HMS Permitted vessels participating in the commercial handgear fisheries for Atlantic bluefin tuna may only have gear onboard the vessel that is authorized for bluefin tuna. If a vessel has other non-authorized gears (e.g., trawl nets, tub trawls, lobster pots, etc.) those vessels may not fish for, retain or possess bluefin tuna. Thus this EFP is designed to collect information via EM that may help inform any potential regulatory changes that may be warranted pertaining to gears present onboard a vessel while pursuing bluefin tuna commercially. The CCCFA is composed of New England fishermen who typically target groundfish under the management authority of GARFO. Fishing under this EFP and the associated data collection is still underway and it is yet to be determined if/how this information will influence any future potential regulatory changes.

Electronic Logbooks

The HMS Management Division is working with the SEFSC to develop/test/implement electronic vessel logbook reporting in multiple fisheries, including both the pelagic longline and bottom longline fisheries. The Southeast Electronic Technology Implementation Plan will provide more specific details on these efforts.

9 Data Integration and Modernization

As mentioned in Section 4. Regional ET Priorities, the HMS Management Division, in discussion with the HMS Advisory Panel, as well as numerous other parts of NOAA Fisheries have made it a top priority to streamline reporting programs and maximize the efficiency of the systems the agency is using to collect fishery information. In regard to ER, these include collaboration between HMS Management Division and other regions to incorporate the data elements required for HMS reporting to allow for vessels operating under multiple reporting authorities to submit one report to meet each of those respective programs data needs. Another example is the consolidation of data from multiple programs into the eDealer database, as this effort currently bridges the gaps that may exist in both federal and state level dealer reporting authorities and requirements.

Two additional efforts that are currently underway are the development of online administration capabilities for the information collection programs applied to the Atlantic pelagic longline fishery and NOAA Fisheries regional vessel permits. For the Atlantic pelagic longline fishery, these efforts will facilitate database comparison to assess and validate data accuracy and precision. Such assessments also have the potential to enable evaluation of further streamlining, for example through consolidation of programs/databases or other measures as appropriate.

The HMS Management Division has made open access vessel permits available online for close to 20 years. As other regions proceed to bring their respective permit applications online, too, this provides NOAA Fisheries an opportunity to explore ways to integrate and modernize vessel permit data and applications to minimize burdens on the regulated public that may need to obtain permits from multiple regions.

10 Data Standards and Interoperability of ET Systems

Currently all HMS related ER programs are designed and maintained in accordance with the National Institute of Standards and Technology (NIST) SP 800-37 Risk Management Framework for Information Systems and Organizations. The system manages security and privacy risk throughout the System Development Life Cycle in compliance with the Federal Information Security Modernization Act (FISMA) requirements as well as guidelines set forward by the Department of Commerce (DOC), National Oceanic and Atmospheric Administration (NOAA), and National Marine Fisheries Service (NMFS) the Office of the Chief Information Officer (OCIO). The HMS Management Division has not developed, nor published data standards on its own; however, HMS Management staff are actively engaged in multiple domestic and international working groups (e.g. ETWG, ICES WGTIFD, ICCAT) to provide expertise and perspective in a comprehensive manner.

As it pertains to the Atlantic HMS Pelagic Longline EM Program, the HMS Management Division has developed procedures pertaining to the implementation of the program as applicable to the vendor and the regulated fleet, and EM regulations for HMS fisheries may be found at 50 CFR §635.9 Electronic Monitoring.

11 Costs of EM Programs

The Policy Directive on Electronic Technologies and Fishery Dependent Data Collection (04-115-02) illustrates the cost allocation in EM programs for federally managed U.S. fisheries. NOAA Fisheries has identified two categories of costs associated with EM programs: sampling costs and administrative costs. For all EM programs, NOAA Fisheries will be responsible for the administrative costs, including the costs of setting standards for such programs, monitoring program performance, and providing administrative support to address science, enforcement, and management needs, except where the Magnuson-Stevens Act specifically authorizes the collection of fees for these costs. Sampling costs are provided by industry and/or NOAA Fisheries. The current costs of the Atlantic HMS Pelagic Longline EM Program have come from a number of various sources including, but not limited to Catch Shares and FIS funding while the bottom longline EM sensor soak time feasibility study is currently supported by FIS. More details are provided in Table 14.7.

12 EM Cost Transition Plans

The Policy Directive on Electronic Technologies and Fishery Dependent Data Collection (04-115-02) has laid out a process to explore cost sharing in programs in which industry is responsible for certain costs, but NOAA Fisheries has historically been paying those costs, and potentially transitioning those over time. The pace of any funding transition, and the feasibility of a transition, will be specific to each fishery and will be determined by NOAA Fisheries, taking into account the status of the fisheries and the amount of funding appropriated to NOAA Fisheries for fishery monitoring programs. The HMS Management Division will explore the feasibility of a transition plan in consultation with the HMS Advisory Panel as well as with stakeholders and partners to explore securing long-term sustainable funding sources for EM, as well as the impacts/implications of being unable to solidify funding.

13 Regional Communications and Outreach Plan

The HMS Management Division staff have a plethora of available avenues to communicate the availability of the Atlantic HMS ET Implementation Plan, in addition to any national rollout efforts. HMS Management Staff will provide updates to the HMS Advisory Panel each Spring and Fall as warranted. The plans will also be posted on NOAA Fisheries websites and given that both EM and ER are intertwined with the implementation of HMS management, there will be a number of dedicated engagement opportunities through various workshops, webinar, or various public hearings/meetings.

14 List of Tables

Table 14.1. Summary of Fisheries Participation in Electronic Monitoring Programs

Fishery	No. of EM Vessels	No. of Active Vessels in Fishery	Observer Coverage	EM Coverage	% video Reviewed	Implementation Type/Date	Funds	Purpose of EM	Comments
Bottom Longline Shark Research Fishery	4	4	100%	100%	0	Pilot Spring 2021	FIS/ NMFS	Use EM sensors to determine Gear soak time	Project does not record video
Pelagic Longline Fishery	110	67	~ 10%	100%	10%	June 2015	Catch Shares/ NMFS	Audit Bluefin tuna catch	

Table 14.2. Summary of Participation in Electronic Reporting Programs for Commercial fisheries

Fishery	No. of ER Vessels	No. of Active Vessels in Fishery	Data Submitted to/Managed By	Required/ Volunteer	Reporting Frequency (Haul, Trip, Week, Month)	Purpose of ER	Comments
Commercial bluefin Tuna/ ALRS	4,500	6,598	HMS	Required	Trip/Catch	Quota monitoring	Reports only required when bluefin tuna are landed or discarded dead
Pelagic Longline/VMS	110	67	HMS	Required	Set/Haul	bluefin tuna bycatch and fishing effort	

Table 14.3. Summary of Participation in Electronic Reporting Programs for For-Hire and Recreational Fisheries

Fishery/ survey name	Mode	# ER Vessels	# Vessels in Fishery ³	Data Submitted to/ Managed by	Validation Method	Required/ Volunteer	Reporting Frequency (Haul, trip, week, month)	Purpose of EM	Comments
ALRS ¹	Web, App	6,500	25,176	HMS		Required	Trip/Catch	Quota Monitoring	Reports only required when bluefin tuna, billfish, or swordfish are landed or discarded dead (BFT only)
ATR ¹	Web	300	N/A	HMS/ SEFSC		Required	Tournament	Quota Monitoring	Reporting is by tournament operators, not vessels
Mid- Atlantic For-Hire Electronic Logbook ²	Web, App	436	1,287	GARFO/ ACCSP		Required	Trip	Quota Monitoring	See Northeast ET Plan for more detail
South Atlantic For-Hire Electronic Logbook ²	Web, App	528	1,012	ACCSP/ SERO		Required	Trip	Quota Monitoring	See Southeast ET Plan for more detail
Gulf of Mexico For-Hire Electronic Logbook ²	Web, App	301	495	ACCSP/ SERO		Required	Trip	Quota Monitoring	See Southeast ET Plan for more detail

¹ Number of HMS vessels reporting to ALRS and tournament operators reporting to ATR were based on current PRA burden estimates.

² Number of HMS vessels reporting to the regional for-hire logbook programs was estimated based on a permit overlap analysis of HMS and regional for-hire permits from 2018. To avoid double counting of vessels with multiple regional permits, vessels were assigned to the region with the most stringent reporting requirements.

³ Number of vessels in the fishery was determined by the total number of HMS Charter/Headboat and Angling permit holders for ALRS, and by the number of HMS Charter/Headboat vessels within each region for the regional logbook programs.

Table 14.4. Summary of Participation in Electronic Reporting Programs for Federal Dealers/Processors/Tenders

Dealer or Processor or Tender	# of Federal Permits	Data Submitted to/Managed By	Required/Volunteer	Reporting Frequency (day, week, month)	Purpose of ER	Comments
Swordfish, Sharks, and BAYS Tunas Dealer Permits*	457	HMS Management Division	Required	Weekly Reporting	Quota Monitoring	
Bluefin Tuna Dealer Permits*	337	HMS Management Division	Required	Reporting within 24 hrs of receipt	Quota Monitoring	

*There is some overlap between dealer with swordfish, sharks, and BAYS tunas dealer permits and bluefin tuna dealer permits. 61% of the 457 swordfish, sharks, and BAYS tunas dealer permit holders also have a bluefin tuna dealer permit.

Table 14.5. Summary of Participation in Electronic Data Collection for Observer Programs/Study Fleets

As all observer programs currently monitoring Atlantic HMS fisheries are managed by the SEFSC (Southeast Pelagic Fishery Observer Program, Southeast Shark Bottomline Fishery Observer Program, and the Southeast Gillnet Observer Program), the Atlantic HMS ET Implementation Plan will defer to the Southeast ET Implementation Plan for this information.

Table 14.6. Summary of Participation in Electronic Vessel Monitoring System Programs

Fishery/Survey Name	# of VMS Vessels	# of Active Vessels in Fishery	Data Submitted to/Managed by	Required/Volunteer	Reporting Frequency (Haul, trip, week, month)	Purpose of VMS	Comments
Atlantic HMS Pelagic Longline Fishery	110	67	NMFS OLE	Required	BFT Set Reports within 12 hours of haulback	Enforcement	
Atlantic HMS Bottom Longline Fishery	Up to 18	Varies	NMFS OLE	Required under certain circumstances	Trip	Enforcement	If the vessel is between 33°00' N. lat. and 36°30' N. lat., and the Mid-Atlantic shark closed area is closed.

Fishery/ Survey Name	# of VMS Vessels	# of Active Vessels in Fishery	Data Submitted to/Managed by	Required/ Volunteer	Reporting Frequency (Haul, trip, week, month)	Purpose of VMS	Comments
Shark Gillnet Fishery	Up to 23 vessels	Varies	NMFS OLE	Required under certain circum- stances	Trip	Enforcement	As instructed between December 1 and March 31, pursuant to LWTRP.

Table 14.7 Cost template for Atlantic HMS Pelagic Longline EM Program).

Sampling Costs

EM System and Monitoring Plan	Current Funding	Funding Sources	Total Funding	Comments
Equipment purchase, leasing, and installation, Maintenance, system upgrades, and repairs, Training for captain and crew, Development of Vessel Monitoring Plans	\$570,000	Base-Contract	\$570,000	Funding estimate does not include time spend by NMFS FTE on EM; approximately 1 % of FTE on this aspect of EM
EM Data and Provider Services				
EM Data and Provider Services	Current Funding	Funding Sources	Total Funding	Comments
Video and Data Transmission	\$0		\$0	Video and data transmission costs incurred by vessel owner/operator
Video Review and Processing	\$259,026	Base-Contract	\$259,026	
Storage of Imagery and Data				
Service Provider Fees and Contract				
Other (please describe)				
Sub-Totals	\$259,026		\$259,026	

Administrative Costs

Program Support	Current Funding	Funding Sources	Total Funding	Comments
Council support, rulemakings, and permitting	\$0		\$0	Funding estimate does not include time spend by NMFS FTE on EM; approximately 1 % of FTE on this aspect of EM
Staff time to review equipment on vessels and VMPs	\$0		\$0	
Facilitate communications participants and EM providers	\$0		\$0	
Manage vessel/ video review selection	\$0		\$0	
Other (please describe)	\$0		\$0	
Sub-Totals	\$0		\$0	
Certification of EM Providers	Current Funding	Funding Sources	Total Funding	Comments
Review provider contracts	\$0		\$0	
Examine software, hardware, and data reports	\$0		\$0	
Other (please describe)	\$0		\$0	
Sub-Totals	\$0		\$0	

EM Program Performance Monitoring	Current Funding	Funding Sources	Total Funding	Comments
Auditing EM service provider				Funding estimate does not include time spend by NMFS FTE on EM; approximately 1 % of FTE on this aspect of EM
Reviewing video and data to optimize sampling rates				
Analyzing data and integrating into monitoring program	\$49,411	Base-Contract	\$49,411	
Other (please describe)	\$0		\$0	
Sub-Totals	\$49,411		\$49,411	
Video and Data Storage	Current Funding	Funding Sources	Total Funding	Comments
Video storage and access	\$184,000	Base-Contract	\$184,000	Funding estimate does not include time spend by NMFS FTE on EM; approximately 1 % of FTE on this aspect of EM
EM database maintenance	\$298,107	Base-Contract	\$298,107	
Other (EM database enhancements)	\$258,456	Base-Contract	\$258,456	
Sub-Totals	\$740,563	Base-Contract	\$740,563	