REGIONAL ELECTRONIC TECHNOLOGIES IMPLEMENTATION PLAN for MARINE FISHERIES in the WEST COAST REGION

I. INTRODUCTION

The implementation of marine fisheries management regulations in recent years that require near real-time reporting of retained catch fishery related impacts by species at the vessel level have challenged the methodological and budgetary limits of contemporary data collection methods such as on-board observers, self-reporting, dockside monitoring, and filing landing receipts. Further, the demands for more precise, timely, and comprehensive fishery-related data continue to rise as fishery managers strive for greater by-catch control and optimized target stock catches via increasingly more sophisticated regulatory approaches. Electronic technologies[1] (ET) are emerging as a more effective and efficient solution to meet these challenges and demands. Opportunities to carry out existing data tasks in a more efficient manner are particularly important in time of increasing budgetary constraints.

In May 2013, the National Marine Fisheries Service (NMFS) issued Policy Directive 30-133, *Policy on Electronic Technologies and Fishery-Dependent Data Collection* (attached), which called for the development of Regional Electronic Technology Implementation Plans to address regionally specific fishery data collection issues and needs. Importantly, the Policy Directive did not state that electronic technologies were appropriate for all of a region's fisheries or fishery management plans (FMP). Rather, it called for the identification of fisheries or FMPs for which electronic technologies are appropriate. In describing an implementation plan, it is important to acknowledge the Pacific Fishery Management Council's (Pacific Council) policy role in the development of the regulations necessitating the collection of data and, in some cases, regulatory requirements for the use of ET. While there is always a linkage between Council management policy and the design of the data system, the specifics of how management data needs are met are often left to the implementing agencies. In that regard, the roles of several key partners, in addition to the NMFS and the Council, will need to be taken into account in any electronic technologies implementation plan: the Pacific States Marine Fisheries Commission (Pacific Commission) as the clearing house of West Coast fishery catch information, and the States of Washington, Oregon, and California, West Coast States and Northwest Indian Tribes in their roles as the original collectors of most shore-based catch accounting information.

This Plan is to describe the intent to consider the use of ET in the management of West Coast marine fisheries, including implementation necessities by the aforementioned entities, over the course of the next five years. The Plan is to provide a list of fisheries or data collection methods across fisheries that are target candidates for the application of ET to achieve costs savings, economies of scale, and greater efficiency in catch and discard information. The roles and effects on responsible agencies should be addressed. The Plan needs to address funding issues including the possibility of industry cost sharing. Lastly, an evaluation protocol is needed to assess ET effectiveness after implementation.

[1] Electronic technologies for the purposes of this plan include vessel monitoring systems (VMS), electronic logbooks (EL), video cameras for observer-type electronic monitoring (EM), electronic fish ticket (EFT) systems and other technologies that provide EM and electronic reporting (ER).

II. Plan Content

The following draft outline contains suggested components for a Regional Electronic Technology Implementation Plan

1) Overview of the Regional Electronic Technology Implementation Plan
    a. Overall goal of electronic technology plan
        - Clear objectives of electronic technology plan
        - Overall Plan Development and Oversight
    b. Technological capabilities
    c. Costs
        - Industry Costs
        - Pacific Fishery Management Council Costs
        - NMFS Costs
            - West Coast Regional Office Costs
            - Science Center Costs
                - Northwest Fishery Science Center
                - Southwest Fishery Science Center
        - State Costs
        - Tribal Costs
    d. Funding for regional plan implementation
        - Identified Funding Sources
        - Industry Cost Share
        - Statement about what we're spending in the current year, 2014
        - A table of future funding needs for ET plans by year
    e. Regulatory changes needed to implement electronic technologies
        - Electronic reporting
        - Electronic monitoring
        - Other
    f. Proposed evaluation method(s)
        - Develop Evaluation Metrics
        - Stakeholder assessments
        - Cost/benefit
        - Schedule (e.g., 5-year periodic)

2) Recommendations/Concerns/Issues
        - Technical/scientific
        - Budgetary
        - Regulations
        - Implications for non-federal fisheries management
        - Implications for existing programs including federal observer programs
        - Other
            - Confidentiality
            - Law Enforcement including chain of custody
            - Lack of EM providers
            - Effects on third-party observer providers
            - Assessing changes Data Quality
            - Apples to Apples Comparison Cost Comparisons between Observer Costs and EM Costs

- Assessing Costs Impacts on Industry
- Keeping up with changes in Technology (and allowing for Industry Innovation.

3) List of Fisheries Suitable for Implementation of Electronic Technologies
    a. Fisheries/FMPs in the electronic technologies plan.
        - FMP Assessments
            - FMP Goals and Objectives
            - Role of Electronic Technology in Achieving FMP Goals and Objectives
            - Current State of Electronic Technology in FMP Fisheries
            - Future Desired State of Electronic Technology
    b. Overall Conclusions
        - Fisheries that are included and why
        - Fisheries that aren't included and why
        - Common Needs Across FMPs

4) Schedule/Timeline for Implementation of Regional Electronic Technology Plan, e.g., 5 Year Planning Horizon
    a. Timetable for components of regional electronic technology Plan
        - Fishery by fishery
            - Current Rule Making/Implementation Plans
            - Future Plans
                - Development Plan
                - Industry/Council/Agency - Consultation Process
                - Potential effects on Conservation and Management
                - Potential effects on current Data Collection Systems
                - Potential Pilot Studies
                - Cost Analysis
                - Funding Analysis
                - Regulatory Process
                - Implementation and Infrastructure Development Plan
                - Outreach
    b. Prioritization of Electronic Technology FMP Plans
    c. Five year Plan Schedule
        - Major Milestones
        - Measures of Progress

5) Evaluation Of Implementation Progress
    a. Number of FMPs with defined fishery-dependent data collection and monitoring goals
    b. The number of FMPs reviewed to identify fisheries where the adoption of additional technologies would be appropriate for achieving data needs
    c. For fisheries where additional electronic technologies are appropriate, the number of FMPs with electronic technologies incorporated into fishery dependent data collection programs
    d. Needed Course Corrections and Why

NATIONAL MARINE FISHERIES SERVICE POLICY DIRECTIVE 30-133 ***MAY 3, 2013***
Administration and Operations
POLICY ON ELECTRONIC TECHNOLOGIES AND FISHERY-DEPENDENT DATA COLLECTION
NOTICE: This publication is available at: http://www.nmfs.noaa.gov/directives/.

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SUMMARY OF REVISIONS:	

Introduction.

This policy provides guidance on the adoption of electronic technology solutions in fishery- dependent data collection programs. Electronic technologies include the use of vessel monitoring systems (VMS), electronic logbooks, video cameras for electronic monitoring (EM), and other technologies that provide EM and electronic reporting (ER). The policy also includes guidance on the funding for electronic technology use in fishery-dependent data collection programs.

Constraining budgets and increasing demands for data are driving the need to evaluate and improve existing fishery-dependent data collection programs, in particular with respect to cost-effectiveness, economies of scale and sharing of electronic technology solutions across regions. The demands for more precise, timelier, and more comprehensive fishery-dependent data continue to rise every year.

The implementation of fisheries management regulations that require near real-time monitoring of catch by species at the vessel level have challenged the methodological and budgetary limits of data collection methods such as self-reporting, on-board observers, and dockside monitoring. A policy and process to consider the adoption of electronic technology options can help ensure the agency's fishery-dependent data collection programs are cost- effective and sustainable.

Objective.

It is the policy of the National Oceanic & Atmospheric Administration's (NOAA's) National Marine Fisheries Service (NOAA Fisheries) to encourage the consideration of electronic technologies 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:

1. NOAA Fisheries encourages the consideration of all electronic technology options to meet science, management, and compliance data needs.

2. Fishery-dependent data collection programs will be designed and periodically reviewed by NOAA Fisheries regions to ensure effective, efficient monitoring programs that meet industry and government needs, increase coordination between regions, and promote sharing of research, development and operational outcomes.

3. Fishery-dependent data collection programs may be comprised of a combination of methods and techniques including self-reporting, on-board observers, and dockside monitoring, as well as the use of electronic technologies including electronic reporting and video monitoring.

4. Where full retention regulations and associated dockside catch accounting measures are in place, NOAA Fisheries supports and encourages the evaluation/adoption of video cameras to meet monitoring and compliance needs in federally managed fisheries.

5. NOAA Fisheries encourages the use of electronic technologies that utilize open source code or standards that facilitate data integration and offer long-term cost savings rather than becoming dependent on proprietary software.

6. NOAA Fisheries, in consultation with the Councils and subject matter experts, will assemble guidance and best practices for use by Regional Offices, Councils and stakeholders when they consider electronic technology options. Implementation of electronic technologies in a fishery-dependent data collection program is subject to the Magnuson-Stevens Act and Council regulatory process, other relevant state and federal regulations, and the availability of funds.

7. No electronic technology-based fishery-dependent data collection program will be approved by NOAA 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. Where cost-sharing of monitoring costs between the agency and industry is deemed appropriate and approved under applicable law and regulation, NOAA Fisheries will work with Councils and stakeholders to develop transition plans from present to future funding arrangements.

Authorities and Responsibilities.

This policy directive establishes the following authorities and responsibilities:

(1) The NOAA Fisheries Science Board and Regulatory Board are the Executive-level sponsors of the execution of this policy, including oversight of the development of guidance and best practices. Staff support to the Boards will be provided by the Offices of Policy,

Sustainable Fisheries, and Science and Technology. Technical assistance will be provided by *ad hoc* working groups, NOAA Fisheries Headquarters (HQ), Region and Science Center subject matter experts, and other agency or contract resources as requested by the Science or Regulatory Board, subject to the availability of funds. Approval of guidance and best practices is subject to Leadership Council concurrence and Assistant Administrator approval.

(2) Regional Administrators and the Office of Sustainable Fisheries - Implementation of this policy will rely on Regional Offices (and the Office of Sustainable Fisheries with respect to Atlantic Highly Migratory Species) initiating consultations in FY 2013 with their respective Science Centers, Councils, States, Commissions, industry, and other stakeholders on the consideration and design, as appropriate, of fishery-dependent data collection programs that utilize electronic technologies for each Federal fishery.

Measuring Effectiveness.

(1) The consultations by the Regional Administrators and the Office of Sustainable Fisheries will be initiated in FY2013 with the goal of completing by the end of calendar year 2014 a schedule of where and how to adopt appropriate electronic technologies, if any, for all fishery management plans (FMPs).

The following metrics will be used to evaluate progress towards the implementation of this policy:

- The number of FMPs with defined fishery-dependent data collection monitoring goals.
- The number of FMPs reviewed to identify fisheries where the adoption of additional electronic technologies would be appropriate for achieving data needs.
- For fisheries where additional electronic technologies are identified as appropriate, the number of FMPs with electronic technologies incorporated into fishery-dependent data collection programs.

Status reviews of the metrics will take place twice a year by the Regulatory and Science Boards.

References.

Procedural directives will be issued to implement this policy as needed. This policy directive is supported by the glossary of terms listed in Attachment 1.
Signature and Date Line.

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Sam D. Rauch III Date
Acting Assistant Administrator
National Marine Fisheries Service

Attachment 1
GLOSSARY

Terms

Electronic Technology(ies) – Any electronic tool used to support catch monitoring efforts both on shore and at sea, including electronic reporting (e.g., e-logbooks, tablets, and other input devices) and electronic monitoring (Vessel Monitoring Systems, electronic cameras, and sensors on-board fishing vessels).

Electronic Monitoring (EM) – The use of technologies – such as vessel monitoring systems or video cameras – to passively monitor fishing operations through observing or tracking. Video monitoring is often referred to as EM.

Electronic Reporting (ER) – The use of technologies – such as smart phones, computers and tablets – to record, transmit, receive, and store fishery data.

Fishery-dependent Data Collection Program - Data collected in association with commercial, recreational or subsistence/customary fish harvesting or subsequent processing activities or operations, as opposed to data collected via means independent of fishing operations, such as from research vessel survey cruises or remote sensing devices.

Full Retention – A type of fishery where total catch is retained and brought to shore, without discards. This is a generic definition, used in the Policy Directive for illustrative purposes only. There are multiple stages in the fishing process where intentional and unintentional discards can occur. Such variations (e.g., maximum retention, operational discards, prohibited species catch, etc.) require specific definition in each fishery for regulatory compliance and/or enforcement purposes.

Excerpts from: Electronic Monitoring and Electronic Reporting: Guidance & Best Practices for Federally-Managed Fisheries

The full document is available at:
http://www.nmfs.noaa.gov/op/snippets/em_er_discussion_draft_august_2013.pdf

PHASE I Checklist: Current Assessment

- ✓ Describe current monitoring system
- ✓ Inventory current fleet, government & service provider infrastructure
- ✓ Evaluate strengths/weaknesses of existing monitoring tools (e.g., observers, dockside monitors, ER, EM, etc.) relative to specific fishery
- ✓ Summarize existing regulatory framework
- ✓ Identify potential funding sources

PHASE II Checklist: Identification of goals

- ✓ Identify data needs based on FMP objectives, scientific needs, protected species requirements, and characteristics of fleet
- ✓ Engage stakeholders including scientists, enforcement staff, managers, and industry to discuss and adjust, if needed, identified data needs
- ✓ Based on input, define monitoring goals as explicitly as possible:
    - Precision ranges on catch and discards
    - Spatial, temporal, and gear characteristics needed for stock assessments
    - Non-target and protected species
    - Timeliness and frequency

PHASE III Checklist: Program Design

- ✓ Using identified goals, conduct preliminary comparative analysis of different monitoring tools, including cost
- ✓ Once monitoring options(s) are identified, evaluate:
  - Durability
  - Enforceability
  - Data quality
  - Operability/maintenance requirements
  - Timeliness and data integration
  - Fish/catch handling consequences
  - Confidentiality
  - Archiving needs
  - Costs (start-up & maintenance)
- ✓ Identify any needed regulatory changes to support new monitoring program
- ✓ Evaluate funding mechanisms identified in Phase I
- ✓ Select final preferred monitoring tool(s)
- ✓ Establish a timeline for review of monitoring program

PHASE IV Checklist: Pre- Implementation

- ✓ Purchase hardware or other equipment, if needed
- ✓ Train State, Council, Federal or other staff or use outside resources (e.g., contractor) to support implementation of monitoring program, including necessary IT and user support
- ✓ Establish data handling and management procedures
- ✓ Install necessary equipment and test
- ✓ If using ER or EM, create protocols for a) equipment failure contingencies and b) vessel-to-land communication
- ✓ Determine long-term funding mechanism based on refined cost estimates from pre-implementation

PHASE V Checklist: Implementation

- ✓ Implement any required regulatory changes
- ✓ Ensure funding mechanisms are working
- ✓ Expand infrastructure purchases and installation to entire fleet/fishery
- ✓ Ensure appropriate amount of human resources are trained and ready to support program implementation, including IT support
- ✓ If using ER or EM, update or refine protocols from pre-implementation for a) equipment failure and b) vessel-to-land communication
- ✓ Execute hotline, user-support or other troubleshooting process
- ✓ Establish process for collecting feedback on monitoring tool(s) on regular basis to inform future improvements

PHASE VI Checklist: Review and Adapt

- ✓ Using feedback collected and engagement with stakeholders, evaluate performance of monitoring program versus identified goals
- ✓ Every 5 years, or as otherwise determined in Phase I, re- evaluate goals of the monitoring program and funding mechanism (i.e., return to Phase I and refresh cycle)